NOVEMBER 7, 1960

PAPER TRADE JOURNAL

Engineers Pad it to Jaxville, Bring Data on New Developments

Needled Felts are Showing Good Promise, Report Several Mills

New Rayon Fiber Broadens Range of Uses in Specialty Papers

How Finch, Pruyn Cuts Paper Handling and Storage Costs

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For Economical
Means Of Producing
Brown Shades

See Page 4

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Years of experience in paper and pulp processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

No. 31 — Groundwood Bleaching Variables — A Statistical Approach.

No. 32 — H_2O_2 Bleaching of Chemicals and Mechanical Pulps.

No. 47 — Peroxide Bleaching of Pulps.

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No. 64 — Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.

No. 65 — Peroxide Bleaching of Southern Pulps.

No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.

No. 91 — Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.

No. 92 — Peroxide Bleaching of Chemical Pulps.

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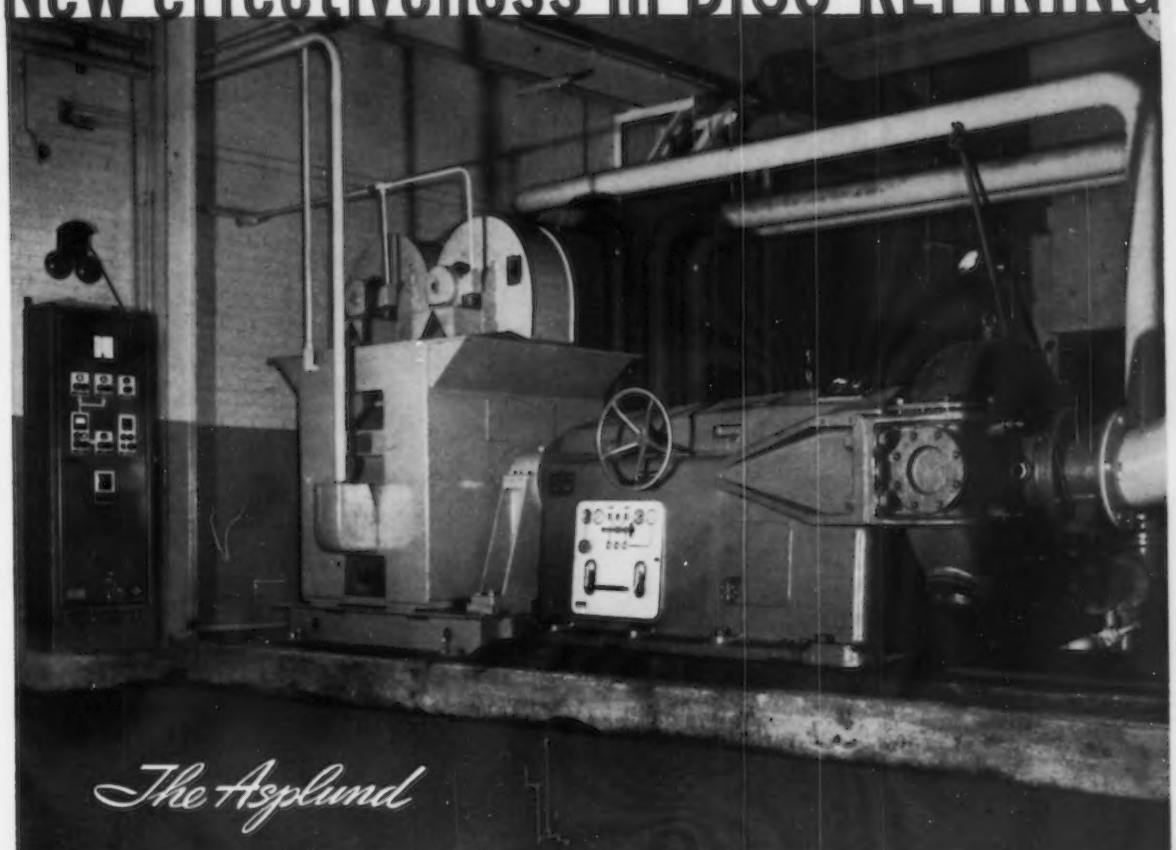

The Asplund

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NORTH AMERICAN MILLS are discovering advantages present only in the Raffinator Disc Refiner for getting highest strength development in all kinds of pulp at consistencies up to 20%.

For example, the Raffinator's exclusive hydraulic control system provides absolute uniformity of clearance between the plates at all points. The rotating disc is positioned with positive, constant control — can be operated at a fixed clearance or on a floating principle to accommodate varying stock pressures. Through a clearance indicator, screen plate settings are conveniently seen magnified 80 times.

Split shell facilitates setting the rotor and static discs in perfect alignment at tolerance of .0001″ or less. Oversize shaft prevents deflection.

Rugged, dependable and efficient, the Raffinator comes complete with electrical system, control panel and automatic safety devices. All parts exposed to stock are made of stainless steel.

Currently proving its effectiveness in over 600 European installations, this high precision disc refiner, an Asplund invention, is engineered and manufactured in Sweden by Aktiebolaget Defibrator. It is now made available to North American mills by Bolton-Emerson.

Get all the facts about the Raffinator Disc Refiner from The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Lawrence, Massachusetts.

BOLTON EMERSON
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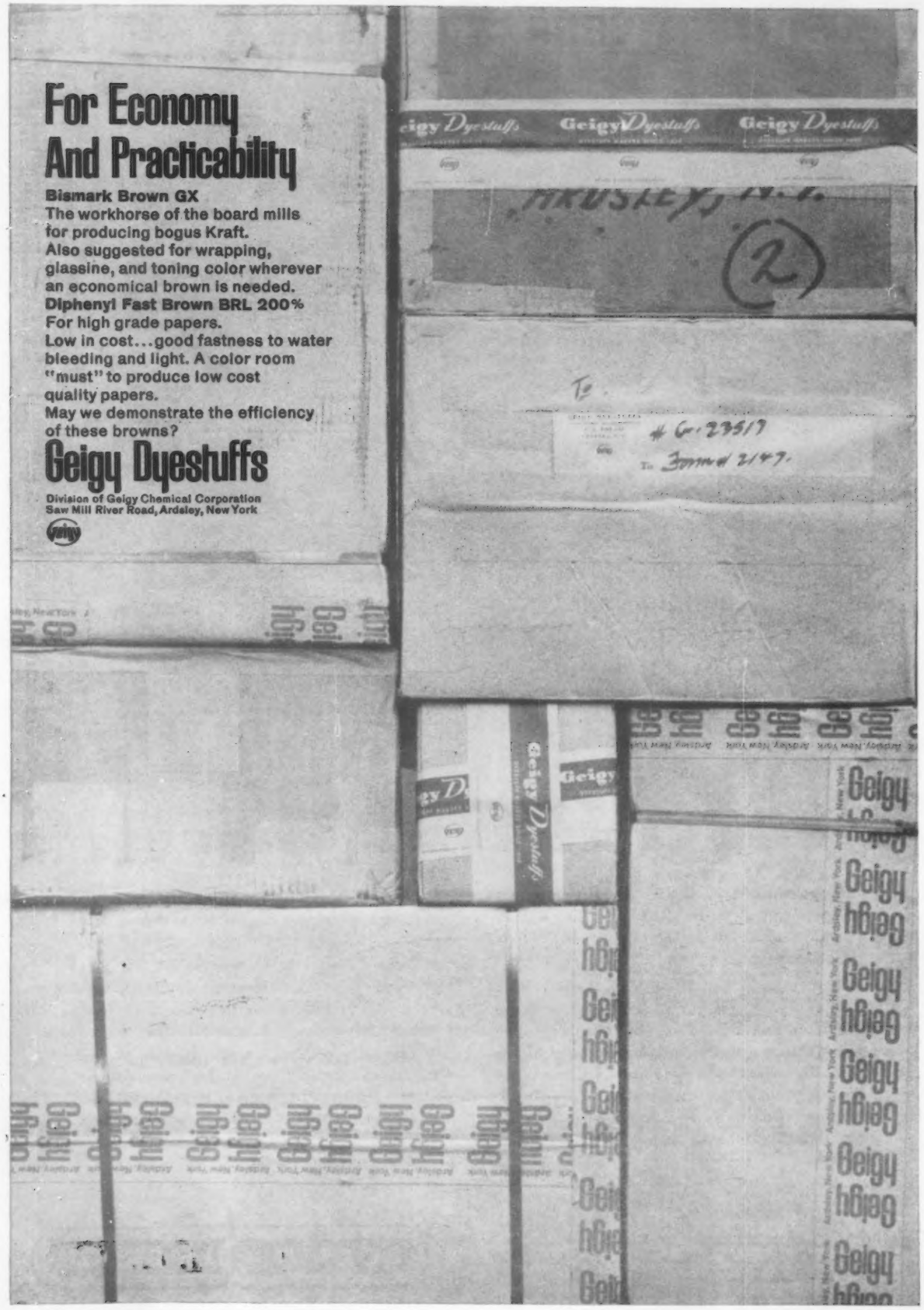
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PUBLISHED WEEKLY SINCE 1872

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Week of November 7, 1960—Vol. 144, No. 45

TRENDS 27

NEWS OF THE WEEK 29

FEATURE ARTICLES

Progress Report on Mill Experience With Needled Felts 40

New Avisco Fiber Is Boon To Specialty Papermakers 42

Engineers Reveal Data on New Developments 44

Narrow Aisle Trucks Solve Paper Handling and Storage Problems 53

PAPER PEOPLE 31
NEWS OF CONVERTERS 34
PRICES OF FIBERS 58
NEWS OF SUPPLIERS .. 62
NEW EQUIPMENT & SUPPLIES 64
FIGURES OF THE WEEK 68
NEW LITERATURE 70
CLASSIFIED ADVERTISING 74
ADVERTISERS INDEX .. 78

REMEMBER THESE DATES

November 14-16, National Paperboard Ass'n Annual Meeting, Waldorf Astoria Hotel, New York

January 24-27, Technical Section, CPPA Annual Meeting, Queen Elizabeth Hotel, Montreal, Canada

February 20-23, Paper Week in New York

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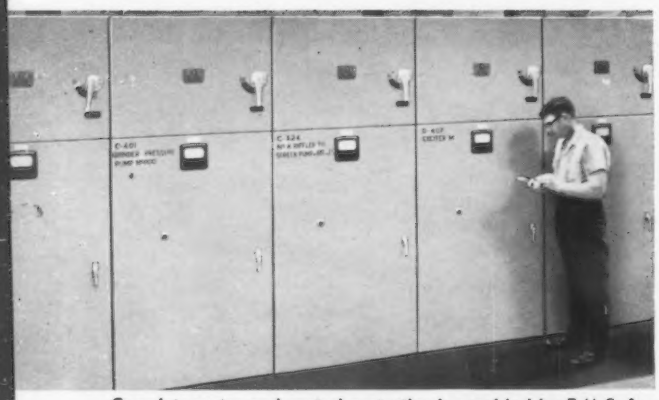
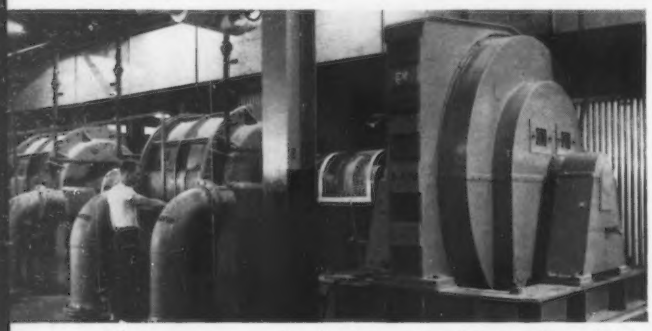
Southland selects E-M for 79,750 motor horsepower and 70 motor controls . . .

WHY?

Because for 20 years E-M apparatus proved its reliability at Southland



Complete motor and control protection is provided by E-M Safuse Controls. Controls shown are for induction motor pump drives and motor-generator sets. Filtered ventilating air in this room keeps maintenance at a minimum.



Three vacuum pumps for No. 4 paper machine are driven by this single E-M pedestal-type, splashproof, synchronous motor. Motor is rated 700 hp, 180 rpm, 1.0 PF, 2300 volts.

24 million gallons of water a day are pumped through this unattended booster pump station. The four E-M splashproof synchronous motors are rated 400 hp, 1800 rpm, 0.8 PF, 2200 volts.

It's in the records at Southland—proof that E-M Motors and Controls stand up to grueling paper mill schedules! Here's why E-M Motors run so well in the paper mills—they . . .

1. Are specially designed for paper mill service. E-M Motors perform "inconspicuously" at Southland. A glance at their service record shows they require practically no unscheduled maintenance. They are designed that way by E-M engineers with 40 years' experience in solving paper industry motor problems.

2. Need little attention. An occasional cleaning and bearing check is all that Southland's E-M Motors require. Duty-matched applications minimize motor maintenance.

3. Lower power costs. Two-thirds of Southland's entire mill power load is consumed by grinder motors. To keep the power bill low, E-M engineers carefully coordinated motor electrical and mechanical designs for most efficient conversion of power.

4. Correct power factor. Unity and 0.8 leading power factor E-M Synchronous Motors help boost Southland mill power factor to over 95%—further reducing power costs.

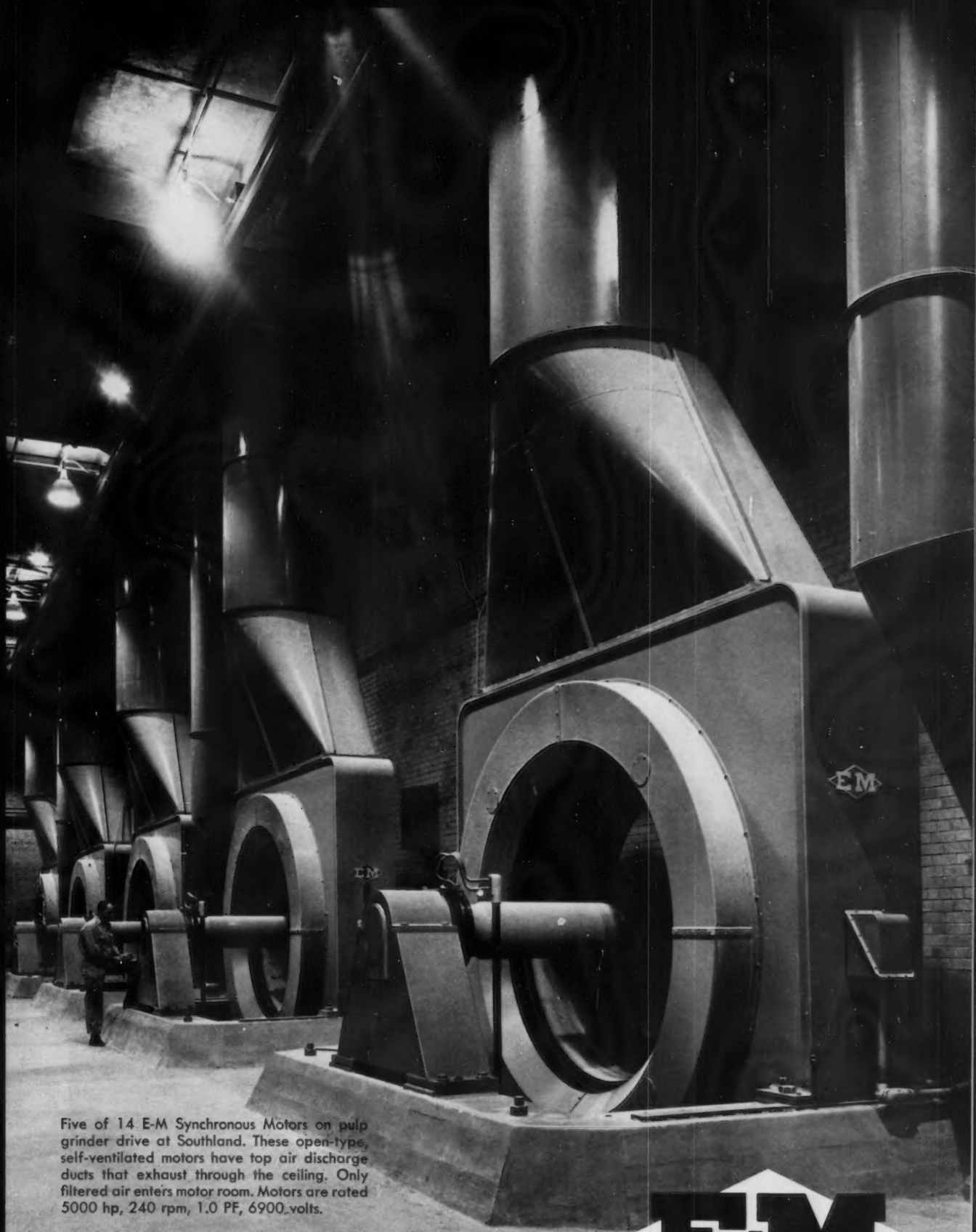
E-M motor controls also proved more than satisfactory. Besides being highly reliable, Southland's modern E-M Safuse Controls provide all these features:

1. Safeguard personnel, motors, and controls. Foolproof interlocks keep Southland operators safe. High speed current-limiting fuses are matched with sensitive overload relays to protect Southland motors and controls over complete design range of overload and fault conditions.

2. Fully front-accessible for convenience. And because they don't need a wasteful rear aisle, Southland saved valuable floor space and building costs.

3. Simplest, most reliable synchronous motor starting. E-M-invented Polarized Field Frequence Relay starting on all of Southland's E-M Synchronous Motor Controls pulls motors into step smoothly and powerfully every time.

Call the E-M sales engineering office near you for more information about E-M electrical apparatus specially designed for the paper industry. And write the factory for a free copy of *The Paper Mill Number of the E-M Synchronizer.*



Five of 14 E-M Synchronous Motors on pulp grinder drive at Southland. These open-type, self-ventilated motors have top air discharge ducts that exhaust through the ceiling. Only filtered air enters motor room. Motors are rated 5000 hp, 240 rpm, 1.0 PF, 6900 volts.

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Minneapolis 13, Minnesota

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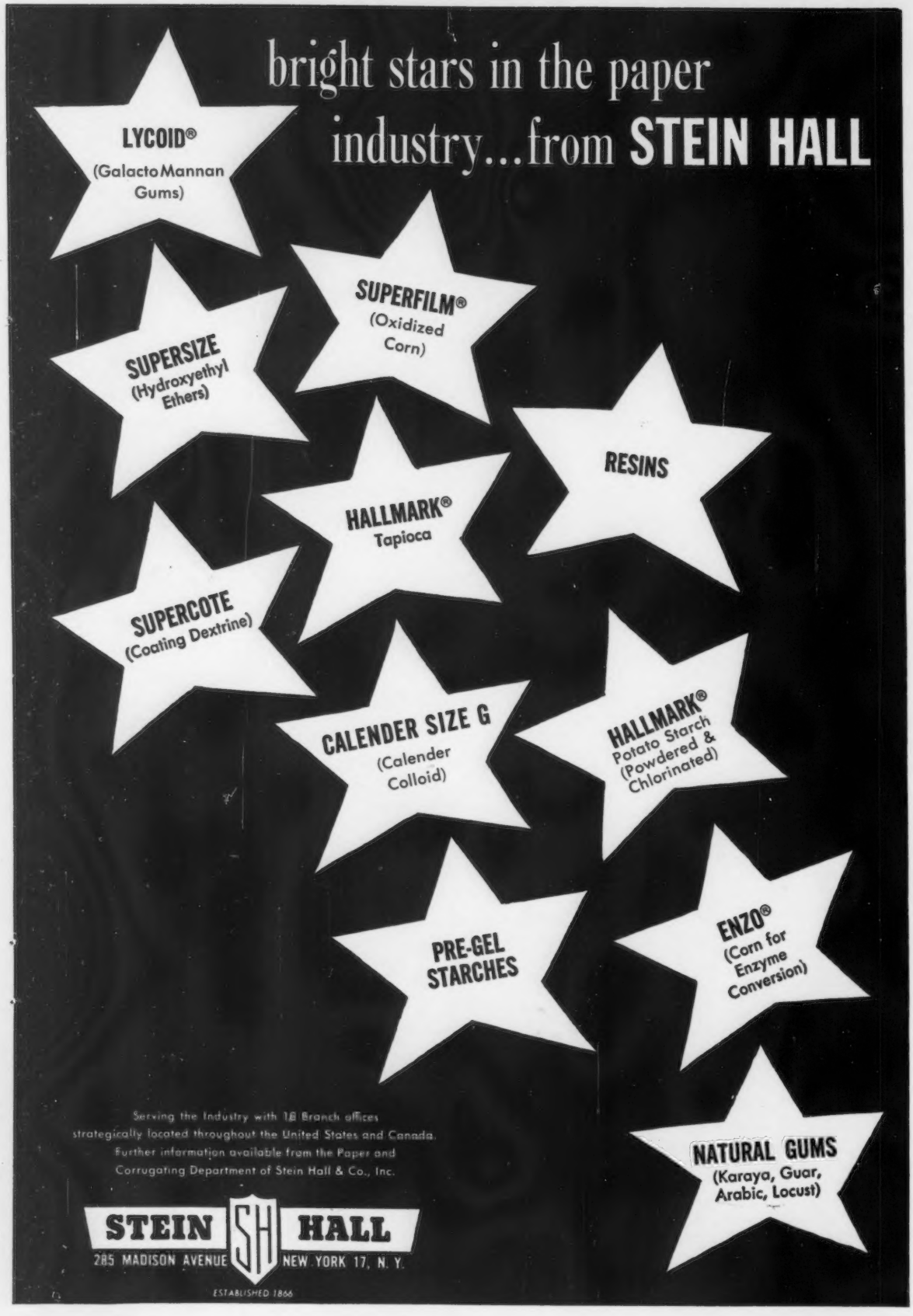
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KOFILMS are breaking every record for starch performance in sizing and coatings. They are acetate ester derivatives of corn starch in which acetyl groups have been chemically substituted on the starch molecule. These functional acetyl groups impart new standards for flow, filming, strength, oil and grease resistance, viscosity stability and flexibility.

FOR SURFACE SIZING. Kofilms are applied at the size press or calender stack. They improve strength, printability, smoothness, surface flexibility, pigment binding, oil and wax holdout and other properties. They also offer better quality control and cleaner operation.

FOR COATINGS. Kofilms provide paper and paperboard coatings with high binding strength regardless of application method. A smooth level coating is assured by uniform flow properties. Increasing use reflects the demand for smoother sheets with high pick resistance and improved printability.

UNMATCHED COMPATIBILITY. Kofilms are compatible with many materials commonly used for special surface sizing and coating formulations: silicones for release properties for pressure sensitive or sticky substances; polyvinyl alcohol for improved grease, wax and oil holdout; resin components for superior coated surfaces. Similar synergistic effects are obtained with CMC, sodium alginates, and other materials.

KOFILMS size and coat an endless variety of paper products. Different viscosity grades can be selected to improve specific properties—as you can see in the actual mill results at right. Why not investigate Kofilms? We'd be glad to help. Just contact your nearest National office.

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ACTUAL MILL RESULTS

#1 MILL EVALUATION— BLEACHED KRAFT FOOD CONTAINER STOCK

Two production runs were made on a 100% bleached kraft food container stock: one with Kofilm 50 and the other with a starch derivative of equivalent viscosity. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 120 secs (Microamps)	WAX PICK	POROSITY READING
Starch derivative	6.0	87	18	250
Kofilm 50	6.0	91	20	300

Higher Vanceometer and porosity readings demonstrate the excellent filming properties and resistance to oil penetration of Kofilms. Subsequent waxing showed that the Kofilm-sized board also had a significantly higher wax holdout.

#2 MILL EVALUATION— OFFSET GRADE

Two production runs were made on a 64 pound offset cover stock (20 x 26-500): one with Kofilm 80 and the other with a low viscosity oxidized starch. In this evaluation Kofilm 80 was employed at a solids content equivalent to that of the oxidized starch. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	WAX PICK	MULLEN	OPACITY	TEAR
Oxidized starch	14	14 to 16	60 to 67	0.95 to 0.96	220 to 230
Kofilm 80	14	16 to 18	64 to 70	0.96 to 0.97	240 to 260

The increase in opacity and tear with Kofilm 80 indicates less starch pickup although equivalent solids were used. When the concentration of the Kofilm 80 size was reduced to 12%, pick tests averaged 16. Actual printing tests of the paper also showed a significant improvement in the degree and uniformity of ink holdout.

#3 MILL EVALUATION— GREASEPROOF GRADE

Using an experimental paper machine size press, Kofilm 80 was run against an oxidized starch of equivalent viscosity on a one-side-sized greaseproof base sheet. Comparative flexibility and grease resistance were determined with a double fold turpentine test conforming to TAPPI Standard T-485 m 53. The sheet was uncalendered prior to testing.

CONCENTRATION %	OXIDIZED STARCH TURPENTINE PENETRATION, secs	KOFILM 80 TURPENTINE PENETRATION, secs
4.0	40	75
6.0	60	415
8.0	200	860

The markedly higher resistance to turpentine penetration obtained with Kofilm 80 on the severe double fold is attributed to the hydrophilic nature and superior flexibility of the starch acetate structure.

#4 MILL EVALUATION— VAT-LINED BOX BOARD

Two production runs were made on a vat-lined boxboard grade at the calender stack: one with Kofilm 50 and the other with a starch derivative at 25% higher solids. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 60 secs (Microamps)	WAX PICK
Starch derivative	10	70	14
Kofilm 50	8	80	14

Even at a lower solids content, tough Kofilms exhibit higher oil resistance and comparable pick.

#5 MILL EVALUATION— KRAFT LINER BOARD

Two production runs were made on a 42 pound kraft liner stock at the calender stack; one with Kofilm 50 and the other with low viscosity oxidized starch of equivalent concentration. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 20 secs (Microamps)	MULLEN	SCUFF
Water	0	15	105	100
Oxidized starch	6	45	110	140
Kofilm 50	6	52	110	150

The tough, hydrophilic film properties of Kofilm clearly demonstrate superior oil resistance and strength.

#6 MILL EVALUATION— EFFECTS OF REDUCED COATING WEIGHT ON ROLL-COATED LETTERPRESS PAPER

A coating was applied on a 28 pound letterpress base stock with a roll coater, using a 3 to 1 mixture of Kofilm 80 and Kofilm 50. The mill compared results with paper produced by their standard enzyme converted binder system. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

COMPONENTS AND DATA	KOFILM	ENZYME CONVERTED CORN STARCH
Coating clay, parts	100	100
Starch, parts	12	16
Calcium stearate, parts	1	1
Solids, %	55	62
pH-adjusted with caustic	8.5	8.6
Viscosity, cps Brookfield 20 rpm	5000	4500
Coat weight per side/ream basis, lbs.	4.5	6.0
Wax pick	6	5
Opacity	92.3	93.0
Show-through resistance	good	good
Ink gloss	88	87

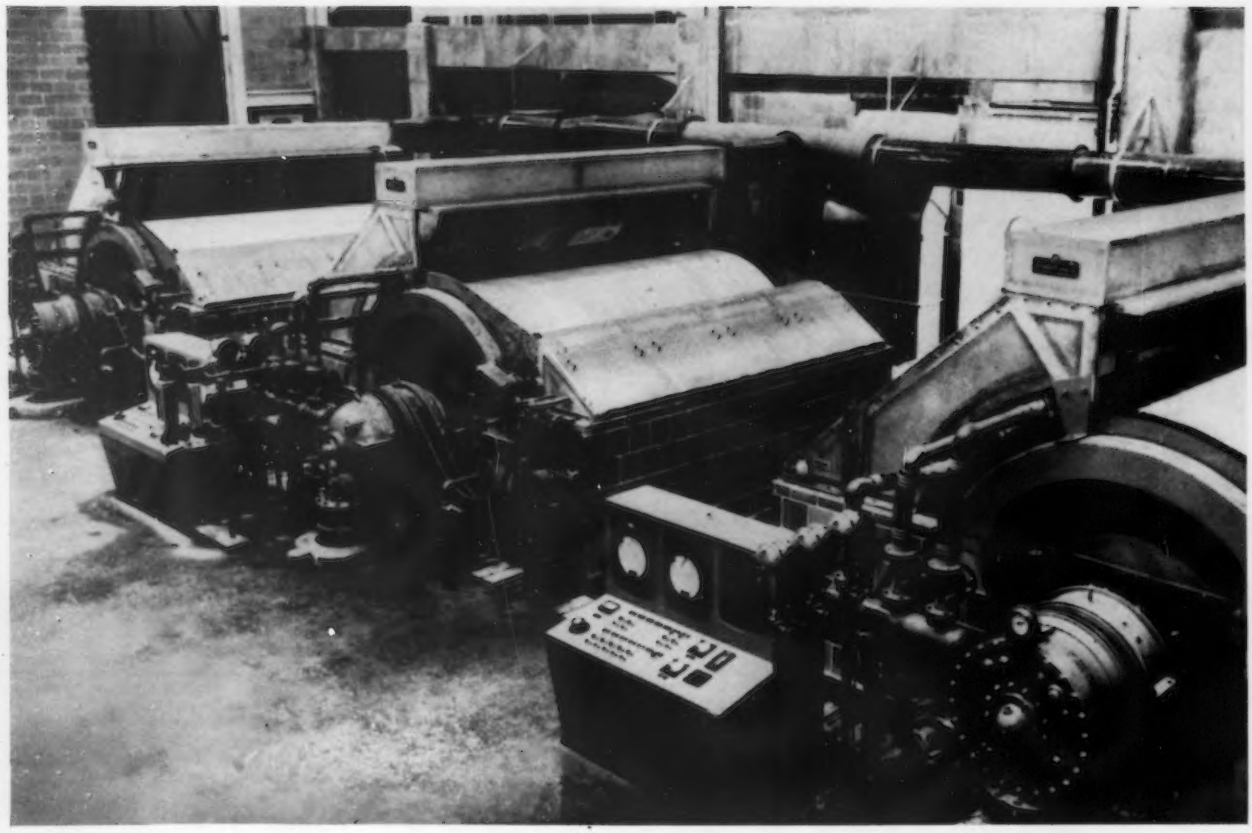
Both formulations were of equal cost. In the Kofilm formulation the coating weight was reduced by 25% without loss of quality. The mill commented that Kofilms showed greater ease of formulation and superior machinability.

National KOFILMS National

UNIQUE ACETYLATED ESTERS OF CORN STARCH

Complete Dorr-Oliver Continuous BLEACHING SYSTEM

installed at
St. Lawrence Corporation, Limited



WHEN the old-established St. Lawrence Corporation, Limited decided to add a bleach plant to its newsprint and kraft liner board mill at Red Rock, Ontario, extensive investigation resulted in the choice of a Dorr-Oliver Continuous 3-Stage Bleaching System. Advantage was taken of the local engineering and manufacturing services of Dorr-Oliver's associated Canadian company, Dorr-Oliver-Long Limited, which supplied all equipment.

The washing system comprises three 8′ dia. x 12′ face washers, designed for an ultimate capacity of 200 tons per day. The first is a rubber covered chlorination washer, which includes a press roll. The second stage is the caustic extraction washer, constructed of stainless steel for possible future chlorine dioxide service. The third and final stage is a rubber covered hypochlorite washer. All washers have double roll dischargers and are in tile vats with fibreglass hoods.

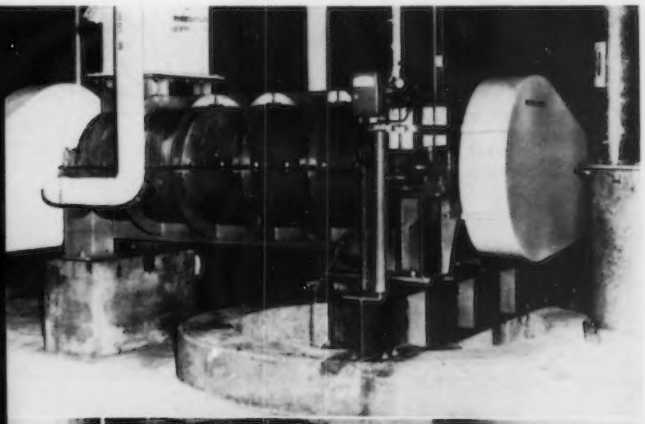
For complete coordination of all phases of the bleaching operation, choice was also made of a Dorr-Oliver rubber lined chlorine mixer, two heater mixers and circulators for the caustic and hypo towers.

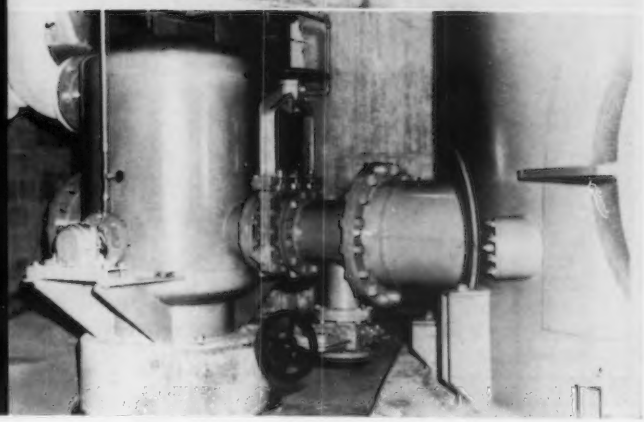
This installation is another example of the world-wide engineering and equipment service offered by Dorr-Oliver to the pulp and paper industry. Complete systems or individual equipment units can be supplied for bleach washing, brownstock washing, deckering and thickening, screening, recausticizing, sheet and board forming, fibre recovery, waste treatment and SO_2 production. For information, write Dorr-Oliver Incorporated, Stamford, Connecticut.

3-STAGE DORR-OLIVER WASHING SYSTEM installed at St. Lawrence Corporation, Limited.

HEATER MIXER (2 supplied) is 24″ diameter, with double shafts carrying alternate propelling vanes and agitating pins. This Dorr-Oliver design is recognized as the outstanding unit of its type in the field today. Reinforced shell is stainless steel.

CHLORINE MIXER has two 18″ two-bladed adjustable pitch propellers mounted on a common shaft, providing maximum agitation and intimate chlorine mixing. Glass window provides for visual inspection. Flange mounted stuffing boxes are rubber lined and rubber covered.





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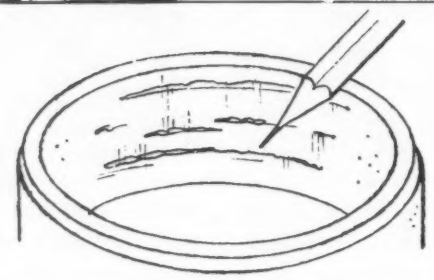
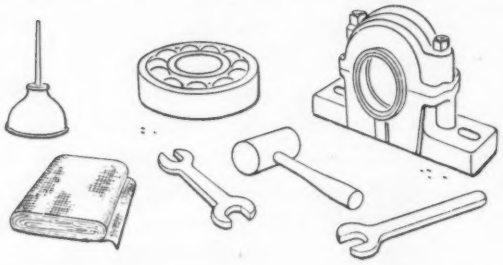
DISTRIBUTOR DAN the SKF bearing man, tells

WHAT DIRT DOES TO BEARINGS

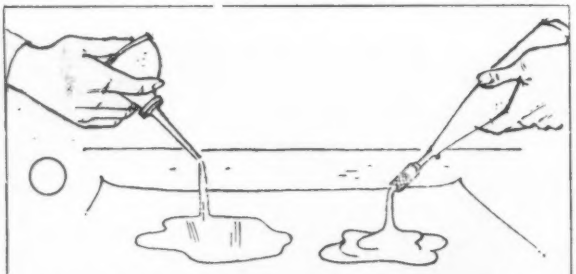
—and how you can help keep it out



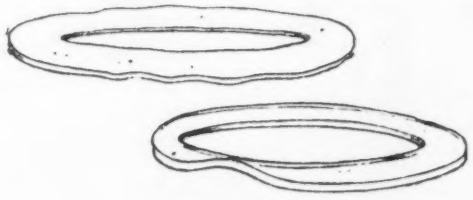
LOOK FOR POLISHED, CLEARLY-MARKED BALL OR ROLLER PATHS. They're sure signs that dirt is getting into your bearings, causing lapping of the parts and ultimate failures. To eliminate this problem, follow the steps shown here.



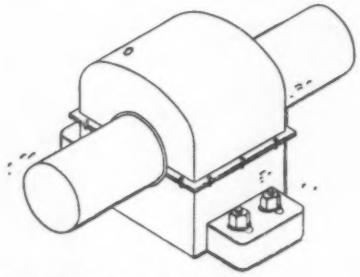
START WITH GOOD "HOUSEKEEPING." Work with clean tools in a clean area. Before you replace a bearing, clean the housing—both inside and out. Always handle a used bearing as carefully as you would handle a new one.



LOOK OVER YOUR LUBRICANTS AND LUBRICATING EQUIPMENT. Dirty oil and grease carry foreign matter with them, right into the bearing. So check them for cleanliness before you use them —and your grease guns and oil cans, too.



IS THE SEAL BENT OR WORN? If it is, dirt and dust and other foreign matter can get into the bearing. If moisture or water is present, you'll need seals made of special moisture-resistant materials.



WHERE DIRT IS A CONTINUAL PROBLEM, try shrouding the bearing housing in a metal box like the one shown here. It's inexpensive, easy to build and helps deflect dust and dirt away from the bearing.

Whenever you're baffled by a bearing problem, consult your Authorized SKF Distributor. His staff of experienced bearing specialists are always ready to serve you—and he stocks all types and sizes of the bearings you need, ready for immediate delivery.

SKF

AUTHORIZED DISTRIBUTOR

6006

Spherical, Cylindrical, Ball, "Tyson" Tapered and REED Miniature Bearings

EVERY TYPE—EVERY USE

SKF®

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

*REG. U. S. PAT. OFF.

chemicals on the move ...

in pulp and paper

Today there are more than 8,000 different types of paper with over 14,000 different uses. A 12-billion dollar goliath, the paper industry has increased its production 80% since World War II.

To satisfy the industry's chemical demands, Olin Mathieson is on the move. Our Technical Service is busy helping mills to utilize our patented process of super-bleaching with chlorine dioxide — and busy helping mills control slime with sodium chlorite. To improve chemical supply we are increasing caustic and chlorine production; now offering urea of outstanding quality and engineering a new plant to produce sodium chlorate.

Change is the challenge and the future depends on the ability to predict change and prepare for it. As a step in providing for your future, let us review your chemical requirements now. In terms of future — or present — developments, our experience in chemical supply can be helpful to you.

Olin Mathieson

CHEMICALS DIVISION, BALTIMORE 3, MD.

CHEMICALS

MATHIESON

Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Soda • Chlorine • Formaldehyde • Hydrazine and Derivatives • Hypochlorite Products Methanol • Muriatic Acid • Nitrate of Soda • Nitric Acid • Soda Ash • Sodium Chlorite Products • Sodium Methylate • Sulfur (Processed) Sulfuric Acid • Urea • Ethylene Oxide • Ethylene Glycols • Polyethylene Glycols • Propylene Oxide • Propylene Glycol • Polypropylene Glycol Propylene Dichloride • Ethanolamines • Glycol Ethers • Surfactants • Ethylene Dichloride

BLOCKSON

Trisodium Phosphate • Trisodium Phosphate Chlorinated • Sodium Tripolyphosphate • Tetrasodium Pyrophosphate • Sodium Hexametaphosphate Monosodium Phosphate • Disodium Phosphate • Sodium Acid Pyrophosphate • Tetrapotassium Pyrophosphate • Sulfuric Acid • Hydrofluoric Acid Sodium Silicofluoride • Sodium Fluoride • Teox® 120 Surfactant

WET STRENGTH for any type of paper

For practically any paper product—grocery bags, facial tissue, paper toweling, butchers' wrap, or paperboard—you will find that one of these UFORMITE resins will provide the wet strength you need . . . economically and efficiently.

UFORMITE 700 gives high off-the-machine wet strength without attendant broke recovery problems.

UFORMITE 711 offers efficient all-round performance at moderate cost.

UFORMITE 467 provides maximum economy in unbleached grades of paper.

These UFORMITE resins have excellent storage stability. They do not require acid pretreatment or aging before use. Write for our 24-page booklet "UFORMITE Resins for Wet Strength Paper".

UFORMITE is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

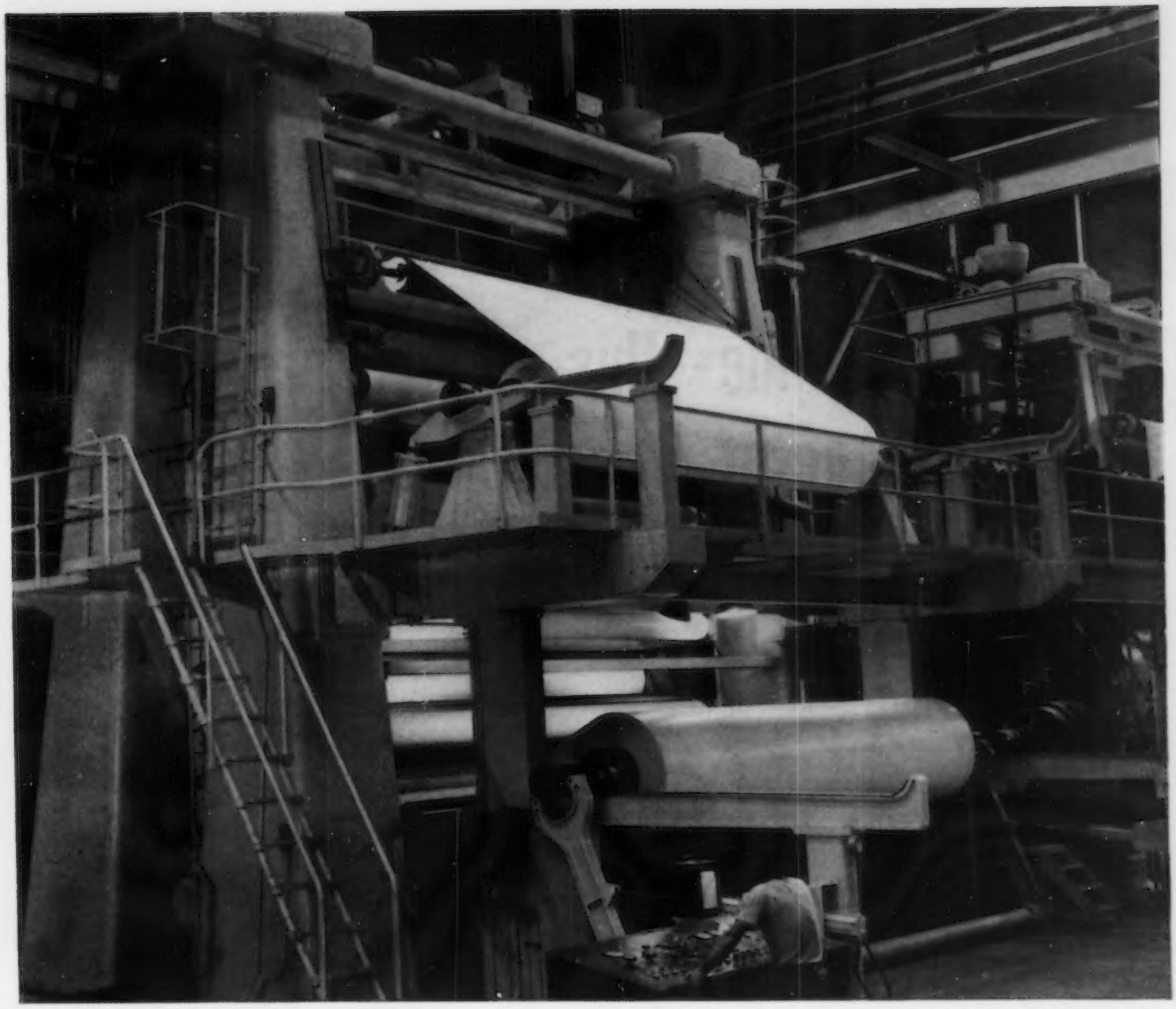
Chemicals for Industry

ROHM & HAAS COMPANY

THE RESINOUS PRODUCTS DIVISION

Washington Square, Philadelphia 5, Pa.

UFORMITE



S. R. CHRISTENSEN

International Paper Co., Hudson River Mill, Palmer, New York

High-Speed Supercalenders

Rugged, dependable, compact . . . Beloit supercalenders are outstanding performers in the calendering of all grades of paper. Their practical design meets the most exacting demands for supercalendering in all widths and at speeds up to 2500 fpm. Features that contribute to Beloit performance are: resilient air-cushioned loading, quick roll change, renewable ways, fully adjustable gibs, complete unwind and rewind tension control, center or surface wind, special sheet threading arrangements, and positive high-speed lifts.

FINISHED PRODUCT PROCESSING EQUIPMENT

Winders • Reclaim Winders • Cutters Slitters • Supercalenders • Roll Wrappers • Roll Lowering Tables Roll and Shaft Handling Equipment Conveyors • Unwind Stands and Tru-Tension Controls • and other equipment for the paper and allied industries.

BELOIT EASTERN PAPER MACHINERY DOWNINGTOWN, PENN.

Member Beloit Group

BELOIT EASTERN CORPORATION

DOWNINGTOWN, PENNSYLVANIA

Reporting more news from . . .

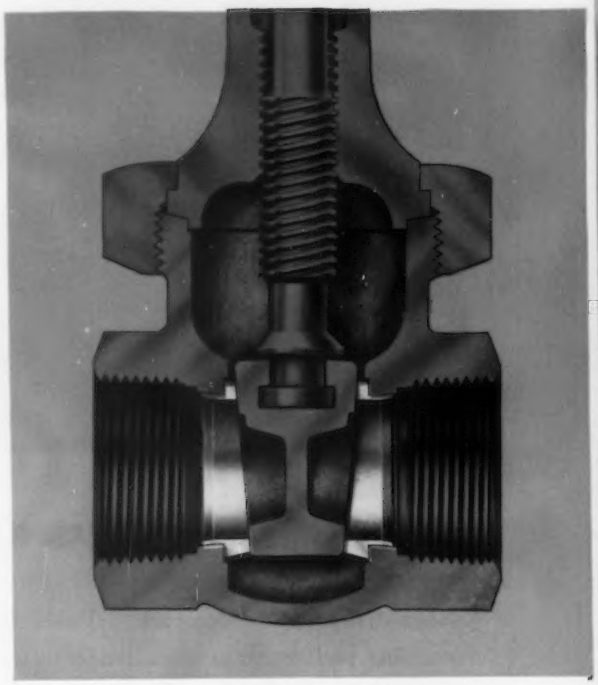
CRANE DIRECTION '70

. . . a fast-moving program of planned expansion, product development, and streamlined distribution to help our customers meet the competitive challenges of the Sixties.

Only from Crane—this rugged bronze valve in a full range of pressure classes and sizes

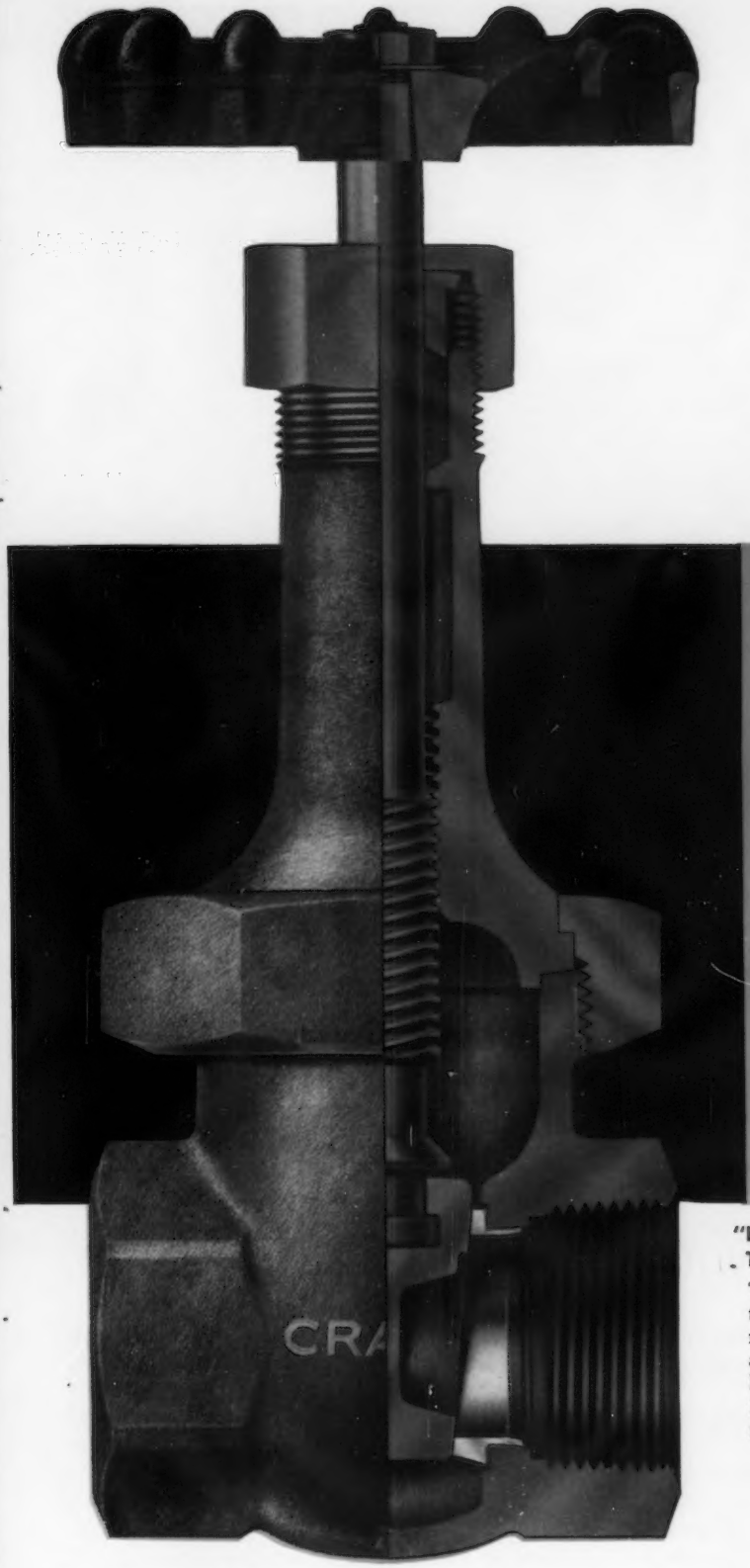
Use these on your toughest services! Here are valves with a built-in safety factor that far exceeds minimum standards. Modern, cylindrical body design—the same as used on high-pressure steel valves—gives you extra protection against body distortion that causes leaks. Crane Exelloy seat rings defy operating wear and damage from foreign matter . . . drastically reduce your valve maintenance costs. And you get this extra performance at no more cost than you pay for a valve built to only minimum standards.

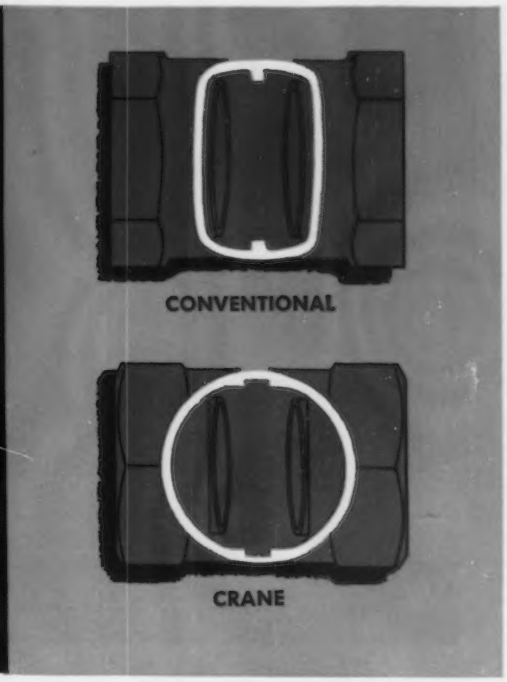
In addition to all these quality features, Crane gives you a far wider selection than any other comparable bronze valve line . . . a full range of sizes from ¼" to 3" . . . in both 200-pound and 300-pound pressure classes . . . in both rising stem and non-rising stem patterns. Your local Crane Distributor has these valves in stock and can ship your order without delay.



THANKS TO EXELLOY SEATS, ONLY THE REPLACEABLE DISC GETS THE WEAR

Crane Exelloy (12% chromium steel) seat rings, expanded into body, give a hard bearing surface with superior resistance to wear, indentation, or scoring. Normal seating wear is shifted to the easily replaceable bronze wedge disc. Ordinary bronze valves wear on both disc and seat, an expensive maintenance factor. But with this Crane bronze valve you need only slip in a new disc to get a like-new, tight-seating valve.





"BEEFED-UP" BODY DEFIES DISTORTION TO MAINTAIN TIGHT SEAL

This Crane bronze gate valve has a cylindrical body . . . the best design to withstand internal pressures. Ordinary rectangular body design creates stress concentration at corners, which may result in distortion of the valve body causing leakage or early failure. Huskier, better integrated Crane design has more rigidity under strains, reinforces seats against wedging action of disc.

CRANE®

No. 424; 200 Pound
No. 634E; 300 Pound

Crane Co., Industrial Products Group, 4100 S. Kedzie Ave., Chicago 32, Ill.

VALVES • ELECTRONIC CONTROLS • PIPING • PLUMBING • HEATING • AIR CONDITIONING

End pitch rejects with low-cost Celite Fillers

For nearly thirty years, paper manufacturers have been successfully relying on Celite® diatomite fillers to eliminate costly pitch problems.

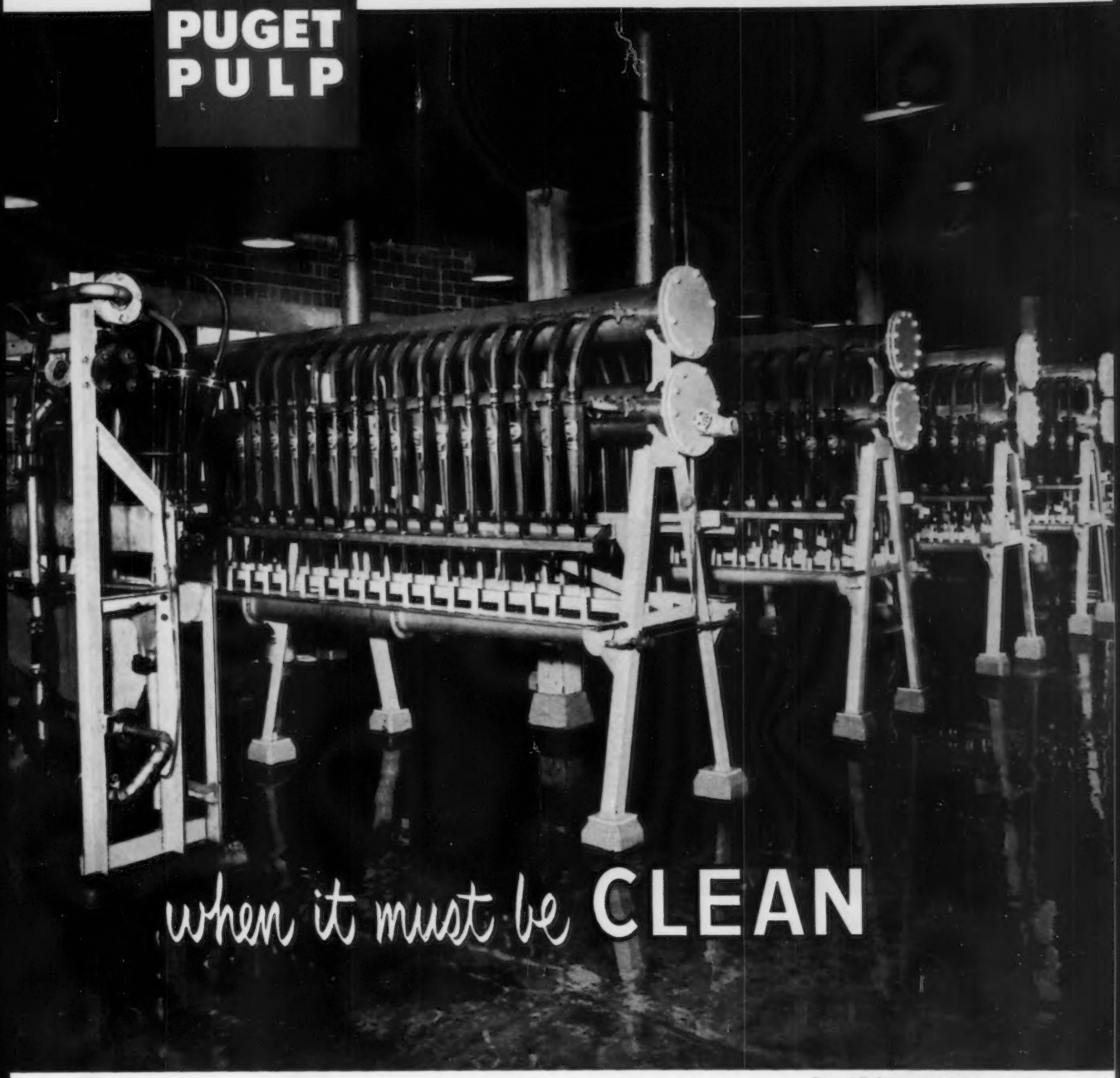
With a porosity as high as 95% and the ability to absorb up to three times its weight in liquid, Celite effectively absorbs and coats the pitch particles. Because Celite's particles will not adhere to each other, the build-up of pitch agglomerates is prevented. Due to the fine size and large surface area of its particles, you need add only 1 to 2% of Celite.

Celite can also be put to work to increase opacity and brightness, replace TiO_2 pigments and to provide better ink receptivity and absorption. It is little wonder that this low-cost filler plays so important a part in the paper industry. For full information, write Johns-Manville, Box 14, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

Celite Division inert fillers and extender pigments in paper are not considered food additives as defined by FD&C Act Amended, Section 201(s).

JOHNS-MANVILLE JM

PUGET PULP



when it must be CLEAN

Puget Pulp's centri-cleaners

start with PUGET PULP...
...the uniformly strong, clean, white
chlorine dioxide bleached
softwood sulphite

PUGET SOUND PULP & TIMBER CO.
BELLINGHAM • WASHINGTON

"security" clearance

Take all possible care to control the quality of chlorine and caustic up to the point of shipment. Follow proper loading procedures to the letter. Then go one step further . . .

At Wyandotte, this means putting a sample from each tank-car shipment of chlorine or caustic through a battery of exacting tests, as a "security" clearance.

These samples are subjected to qualitative and quantitative analyses. They measure up, or the car doesn't go out.

Few samples fail to clear this final check. The steps that precede it provide virtual assurance of quality. But because the possibility, however remote, exists . . . we feel that the practice is warranted.

Dependable quality is a point of pride at Wyandotte. So is dependable service. Significantly, both of our chlorine-caustic plants are on major waterways to gain the advantage of low-cost water transportation. At Geismar, in the South, we are on the Mississippi . . . and close to the Gulf. At Wyandotte, in the North, we are on the Detroit River, and have direct access to the Great Lakes and the St. Lawrence Seaway. Railways and highways also go out from these two plants to four-fifths of the productive capacity of the U.S. and Canada.

The benefits to users of Wyandotte Chlorine and Wyandotte Caustic in its many forms are plain. We can ship economically and with dispatch . . . by barge or ocean tanker, truck or tank car. May we discuss the possibilities with you? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

WYANDOTTE CHEMICALS

WYANDOTTE CHEMICALS

MICHIGAN ALKALI DIVISION

Pacing progress with creative chemistry®

PUSEY AND JONES • PUSEY AND JONES • PUSEY AND JONES • PUSEY AND JONES • PUSEY AND JONES

PUSEYJONES
"RAPI-DRAPE" FOURDRINIER •
PUSEYJONES STEAM JOINTS •
PUSEYJONES DRY PARTS •
PUSEYJONES POPE TYPE REELS •
PUSEYJONES PLASTOMETERS •
PUSEYJONES AIR GUIDE •
PUSEYJONES VACUUM
PICKUP •

NOW THE NAME IS Inglis

Now that John Inglis Co. Limited has acquired the paper machinery patents and assets of the Pusey and Jones Corporation, Inglis modern plants have become the new home of the machines and parts which have given papermakers the lead in today's race against production demands for quality and quantity.

Inglis will continue to improve and develop those features of design and manufacture for which the name Pusey and Jones is known, as well as Inglis' own designs.

Inglis is ready today to supply technical advice, new machines or parts, and to provide full service to existing Pusey and Jones machines anywhere in the world.

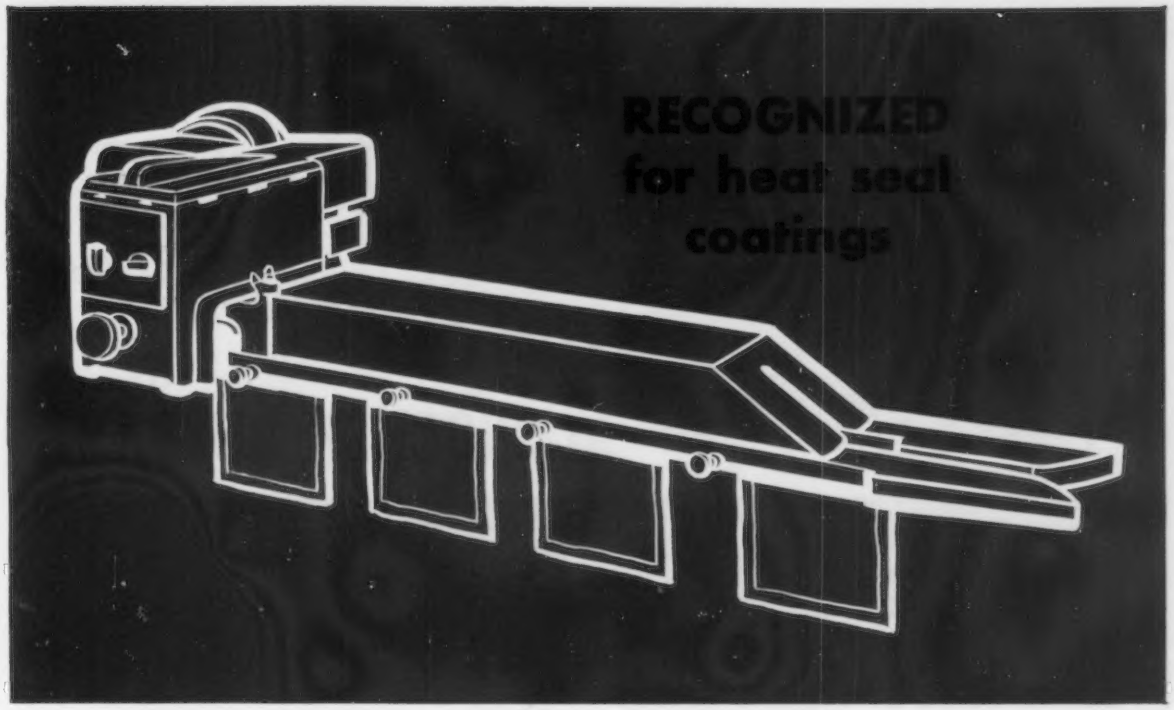
Head Office and Manufacturing Plant, approximately 475,000 square feet, 14 Strachan Avenue, Toronto.

Scarborough Works, approximately 350,000 square feet.

JOHN INGLIS CO. LIMITED PAPER MACHINERY DIVISION

14 STRACHAN AVENUE • TORONTO, CANADA

X134



Gelva® polyvinyl acetate emulsions

GELVA EMULSION PROPERTIES CHART

Type	S-55 Homopolymer Dispersion	TS-22 Homopolymer Dispersion	TS-30 Homopolymer Dispersion	TS-70 Copolymer Dispersion	TS-85 Homopolymer Dispersion	C-3 Alkali Soluble Copolymer Dispersion	S-51 Homopolymer Dispersion
Total Solids (min.)	55%	55%	55%	55%	54.5%	54.5%	55%
Emulsion Viscosity, cps	1100-1300	350-650	1200-1400	900-1300	1400-1700	700-1000	3000-3800
Heat seal temp of film, °F.	195-205	195-205	200-210	170-180	140-150	145-155	250-260
Mechanical Stability	Excellent	Good	Good	Good	Good	Good	Excellent
Freeze-Thaw Stability	Very Good	Good	Poor	Very Good	Very Good	Poor	Good

Whether it's a heat seal coating for glassine or for paper . . . or even vinyl chloride, there's a GELVA emulsion for your application.

Excellent adhesion to a wide variety of surfaces, superior compounding stability and machining characteristics, wide solvent tolerance and high bond strength are a few of the important advantages of Shawinigan's GELVA emulsions. The above chart presents physical properties of GELVA emulsions suitable for compounding heat seal coatings.

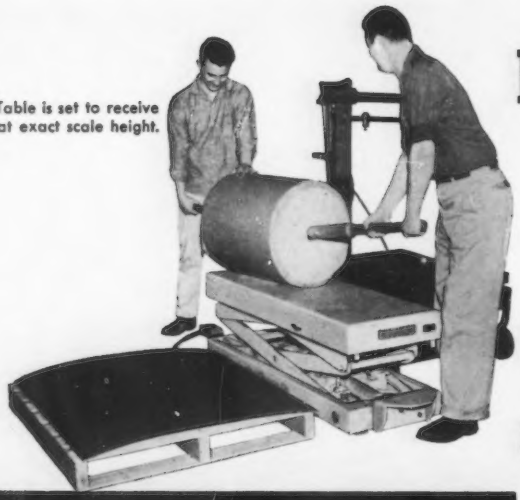
GELVA emulsions are available in a wide variety of grades and in any desired quantity . . . ready for shipment. Whether you need emulsions for pigment bindings, coatings, sizings . . . stability to light sensitive salts . . . water resistant coatings or molded pulp — you can get complete details by writing Shawinigan Resins Corporation, Dept. 7Q, Springfield 1, Massachusetts.

SALES OFFICES: ATLANTA CHICAGO LOS ANGELES NEW YORK CLEVELAND SAN FRANCISCO GREENSBORO ST. LOUIS

GELVA® *polyvinyl acetate resins by*

SHAWINIGAN RESINS

HOW SOUTHWORTH'S DOUBLE SCISSOR* *Cut Handling Time* at CROCKER, BURBANK



1. Table is set to receive roll at exact scale height.

2. Load is lowered to start first tier.

3. Roll in position for second tier.

Stacking 100 lb. rolls in three tiers on shipping pallets at Crocker, Burbank was formerly a job requiring four men. Now *two* men do it, with less effort, in *half* the time. Note in the picture sequence how Southworth's Double Scissor Lift Table completely eliminates the back-breaking strain of manual hoisting and positioning . . . another instance in which Southworth engineering has radically reduced materials handling costs, as well as minimized its accident hazards.

Photos courtesy Crocker, Burbank & Co.

4. Double Scissor Table shown extended to 70".

SOUTHWORTH MACHINE CO.
1127 Warren Ave., Portland, Me.

SOUTHWORTH SYSTEMS

Paper Conditioners; Automatic Carton Sealer; Lift Tables; Air-Lift Tables; Cutters; Deliveries; Layboys; Skid Turners; Hand, Foot, Motor Driven Punching Machines; Humidifiers; Envelope Presses; Punch Heads; Tabbing Knives; Corner Cutters; Custom Built Allied Equipment.

*Lift Table Patents Pending

Trends

Operating Rates Hold for Oct.

Paperboard mill operating ratio for October was close to 93% (Oct. 1959, 96%) and the paper mill figure we estimate at slightly over 94% (Oct. 1959, 97.4%).

Russians Try To Sell Pulp Here Again

Renewed interest is evidenced in selling Russian wood pulp in this country. A recent issue of this magazine carried an advertisement from Amtorg (the Russian trade agency in New York) offering unbleached sulphite pulp from South Sakhalin.

Predicts Corrugated Box Upswing

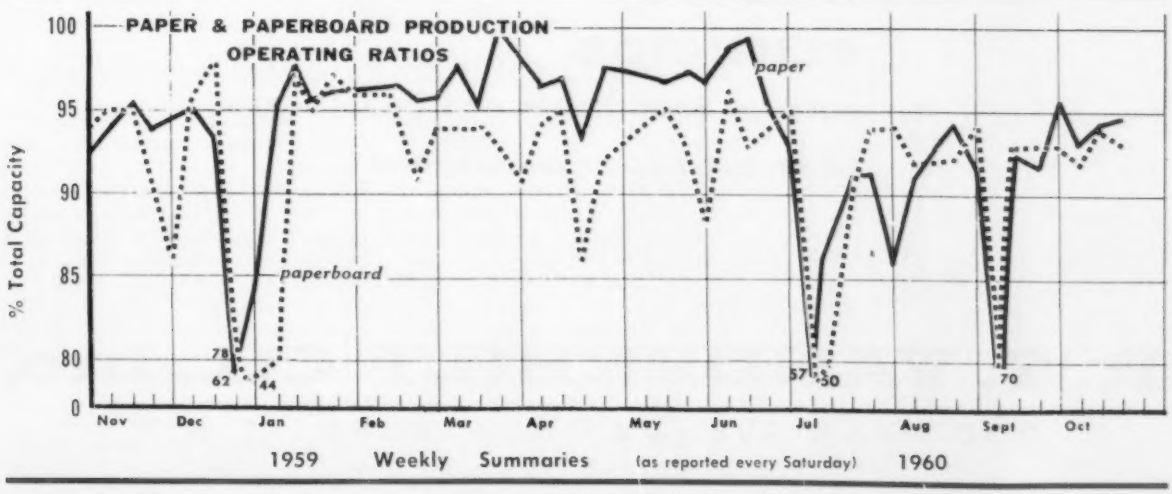
Belief that business conditions in the corrugated box industry, a bellwether of the nation's economy, will improve substantially in a few months was voiced by Walter S. Goodspeed, chairman of the executive committee of Packaging Corporation of America at the new company's first annual stockholders meeting held late in October.

New Pulp Process Has Grown Fast

Since the first description of a commercial process for manufacture of cold soda pulp appeared in the February 20, 1956 issue of Paper Trade Journal there have been 18 mill installations as follows: United States 9, Japan 3, Australia 2, Italy 1, Argentina 1, and Colombia 1, and Yugoslavia 1. This is an extremely rapid rate of growth for the normally slow moving pulp and paper industry. It took the neutral sulphite semi-chemical process much longer to become established and eleven years after its announcement there are only two Chemi-groundwood installations.

Waste Paper Prices Weaken

Waste paper prices continue to weaken. Drops were reported on five grades in the Chicago area for the month of November, while one grade was lowered in New York.



Vancide®

51 Z DISPERSION

FUNGICIDE and BACTERICIDE

very low order of toxicity

Relatively non toxic to warm blooded animals

for use as a

SLIMICIDE

safe for Food Paper and Paperboard

when used as recommended

R. T. VANDERBILT CO., Inc.

230 PARK AVENUE · NEW YORK 17, N. Y.

PTJ | PAPER TRADE JOURNAL

WEEK OF NOVEMBER 7, 1960

Appeals Court Rules Against Bemis in Claremont Suit

A five million dollar damage suit originally won by Bemis Bro. Bag, was reversed by the U.S. First Circuit Court of Appeals in Boston, October 19. An action for five million dollars was instituted in 1951 against Bemis Bro. Bag by James H. Molloy and John D. Wilson to recover ownership of the paper mill located at Claremont, N. H. The case finally came to trial in the Federal Court of New Hampshire in 1959.

During the trial three causes of action were dismissed by Judge Holtzoff. The Court of Appeals ruled, however, that the dismissal of one cause, which involved an allegation of duress upon the partners Molloy and Wilson, had been improper, and that it warranted detailed consideration.

Mr. Molloy and Mr. Wilson, who operated the Claremont Paper Corp., of Claremont, N. H., entered into an agreement with Bemis to supply 9,000 tons of paper per year to the latter, in consideration of a $900,000 loan to be repaid over a period of years. Payments were made on time, but a difficulty arose when Claremont was unable, because of postwar shortages of pulp, to deliver the paper shipments in full. Claremont contended this contingency was allowed under the contract.

The plaintiffs alleged that Bemis, by a series of actions taken as means of duress, imposed upon them a broadening series of "pressures" which resulted in transfer of a majority stock interest to Bemis, and ultimately in a foreclosure action brought by the latter. Bemis bid in the company assets for $500,000 in a sale held in 1950.

The two partners had purchased the company for $1,250,000 in 1946 from William A. Kirn, Sr., and had retained him as president.

In their action, they alleged that Mr. Kirn had shut down part of the mill, without their knowledge, or consent, just before the filing of the foreclosure action. They also submitted evidence showing that Mr. Kirn had been in secret communication with Bemis, supplying the bag company with information prejudicial to their interests. This testimony in the trial was excluded by Judge Holtzoff.

It was charged that other officers of Claremont, "who should have been responsible to the wishes of a majority of the stockholders. . . . were secretly working for Bemis."

New Waste Disposal Plant for Champion

Plans to build a $431,700 industrial waste disposal treatment plant south of Hamilton, Ohio, were announced by The Champion Paper and Fibre Co. This new facility is a part of the company's long-range program for stream improvement as required by the Ohio Water Pollution Control Board. It will be constructed on Champion property across from the city's sewage treatment plant. An initial contract for $387,000 has been awarded to The Charles H. Shook Co., Inc., of Dayton.

The system will provide for primary treatment of paper mill wastes presently discharged into the river.

Preliminary plans were prepared by the Stream Improvement and Engineering Departments of Champion, after extensive mill waste surveys and laboratory studies. A New York firm, Gibbs and Hill, Inc., provided the engineering services.

The project is to be completed prior to low-water season next year. Construction plans call for an extension of the Champion-leased industrial waste interceptor sewer, owned by the city, to the new treatment plant, construction of a waste pumping station with capacity to handle 24 million gallons of waste per day, a 105-foot diameter by 12-foot deep clarifier and thickener, a sewer to discharge the treated water, and a plant office and control laboratory.

Diesel Locomotive Keeps Paper Machine Running

A Diesel locomotive was used to start up The Chesapeake Corp. of Virginia's paper mill last week. It saved the mill ten days or more of "down time" and the loss of 7,000 tons of production.

After a routine stop of the big machine in the company's paper mill, it was discovered that the booster generator used to restart the machine had burned out. The machine turns out 700 tons of kraft paper per day.

Confronted with a 10-day job of repairing the generator, Chesapeake officials sought help. The Richmond, Fredericksburg and Potomac Railroad agreed to send down a 1,500 hp. Diesel locomotive to supply the necessary power until the generator was restored to service. The locomotive was moved there from Richmond over tracks of the Southern Railway.

Promote Mill for Pulp From Cotton Stalks

Formation of a joint venture to pioneer the use of cotton stalks in the manufacture of paper pulp and fertilizer is announced in California. Participating in the venture, which will be called Agricultural By-Products Co., are Kern County Land, Valley Fiber, Inc., and Houston Fearless. An estimated 400,000 tons of cotton stalks a year are now plowed back into the soil in Kern County, Calif.

The jointly owned company will carry out an extensive research program to determine whether promising laboratory results can be adapted to commercial processes at competitive prices. Clifton Clemmens, Valley Fiber president, termed the project "at the moment, and at least for the next six months . . . purely a research program."

VERTICAL experimental paper machine in the new Black-Clawson Research Center was revealed for the first time.

Ohio TAPPI Holds Technical Seminar, Sees Vertical Paper Machine

More than 200 engineers and production managers from pulp and paper mills attended a technical conference in mid-October at Middletown, Ohio. The meeting was organized by the Ohio Section of TAPPI with the cooperation of The Black-Clawson Co.

The meeting was under the direction of Charles S. Sweitzer of Diamond National Corp., Lockland, Ohio, who is chairman of the Ohio section. Aiding in the organization of the program was Frank L. Cessna of Sorg Paper Co.

Black-Clawson was host to the group at a luncheon which was followed by three seminars on new developments in continuous pulping, stock preparation equipment, and the utilization of waste paper in the production of various types of paper board. Later in the afternoon, the entire group visited the Shartle Division plant of Black-Clawson and toured the machine shops and the new Black-Clawson Research Center.

In the Research Center, the group was shown a variety of pilot model equipment for improved pulping and papermaking. Of particular interest was the pilot system for producing wood pulp by the new ChemPreg cold soda pulping process, recently announced by Black-Clawson. Also on display was a laboratory scale, experimental paper machine of radical design, on which Black-Clawson is testing the feasibility of forming a sheet of paper vertically.

The seminar devoted to continuous pulping was moderated by Dr. John N. McGovern (Parsons & Whittemore, Inc.). James Laundrie (U.S. Forest Products Laboratory) spoke on continuous cold soda processing; Robert Green (Champion Paper & Fibre Co.) discussed neutral sulphite semi-chemical continuous pulping, especially for bleachable grades; Robert Fuller (Gulf States Paper Corp.) talked on continuous kraft pulping.

A panel on new developments in waste paper utilization was moderated by E. T. Luey (Boxboard Research Institute). The speakers were Cletus Coffman, (Chesapeake Paperboard Co.) who discussed new arrangements of equipment for improved preparation of filler stocks; Robert Bowen (Alton Box Board Co.) explained attempts to standardize fiber blends for boxboard furnish through greater control of waste paper treatment and increased use of virgin short fiber pulps; Francis Bathon (Elk Paper Manufacturing Co.) explained the improvement in quality and production of corrugating medium based on waste paper through the Petro Diffusion System.

A seminar in new equipment advances in stock preparation was moderated by E. N. Root (Black-Clawson). Douglas Sutherland (Black-Clawson) discussed advances in disk refining of short fibered pulps; Edmund B. Becker (J. P. Lewis Co.) described the operation of the new

CONTINUOUS PULPING PANEL: (l. tor.) J. Laundrie, R. Green, J. McGovern, R. Fuller.

DEMONSTRATION OF CHEMPREG cold soda pulping system at Black-Clawson Research Center during visit.

Hydrapulper in his boxboard mill; Dean Kohlhepp (Black-Clawson) explained the development of increased efficiency in Hydrapulpers through the use of the new Vokes Rotor.

The concluding events of the program were a Black-Clawson sponsored hospitality hour and a TAPPI banquet. The principal speaker, Edward J. Jones of the Institute of Paper Chemistry, discussed basic research studies pointing to entirely new concepts in paper manufacture.

Riegel Elects Bloomer, Lassiter Directors

Robert S. Bloomer and J. Hanes Lassiter have been elected to the board of directors of Riegel Paper Corp. In addition, Mr. Lassiter has been elected a Riegel vice president.

Messrs. Bloomer and Lassiter were the chief executive officers of their respective companies—Bloomer Bros. Co. of Newark, N. Y., near Rochester, and Lassiter Corp. of Charlotte, N. C., whose mergers into Riegel became effective on October 24.

New Paper Company Chartered in Delaware

Patrician Paper Co., Inc., filed a charter of incorporation with the corporation department of the Secretary of State's office, Dover, Del. United States Corporation Co., Dover, Del., is serving as the principal office. There have been rumors that a new paper company was being formed with this name to manufacture sanitary tissue in upstate New York.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending October 22, 1960, at 94.6 per cent, compared with 95.1 per cent, revised, for the preceding week. The ratio was 96.3 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending October 22, 1960, at 93 per cent, compared with 94 per cent for the preceding week and 94 per cent for the corresponding week a year ago.
(Detailed Statistics on page 68)

PAPER PEOPLE

K. O. Elderkin

Leading Industry Engineer Retired Last Month

Karl O. Elderkin of Athens, an executive in the Bowater Organization in North America for eight years, retired October 31 as president of Bowaters Engineering and Development, Inc. George Hobbs, former mill manager of Bowater's Newfoundland Pulp and Paper Mills, Ltd., Corner Brook, Newfoundland, succeeded Mr. Elderkin as president.

Mr. Elderkin, who has spent almost four decades in the pulp and paper industry in North America, joined the Bowater Organization on April 1, 1952, as vice president and general manager of Bowaters Southern Paper Corp. in Calhoun, Tenn. On January 1, 1957, Mr. Elderkin became the first president of Bowaters Engineering and Development, Inc., Calhoun.

As president, Mr. Elderkin has been instrumental in the design or modernization of Bowaters mills in Catawba, S. C.; Kawerau, New Zealand; Mersey, Nova Scotia; Corner Brook, Newfoundland; and at Calhoun.

Born in Weymouth, Nova Scotia, and educated at McGill University, where he received a B.S. degree in mechanical engineering, Mr. Elderkin began his pulp and paper career in 1922, after a short association with the steel industry.

He has worked with the St. Lawrence Paper Corp., Three Rivers, Que.; Price Brothers; Abitibi Power & Paper Co.; Mersey Paper Co., which is now Bowaters Mersey Paper Co.; International Pulp and Paper Co. in Newfoundland, which is now Bowater's Newfoundland Pulp and Paper Mills, Ltd.; John Stadler & Co., Montreal; and the Crossett Co.

A highlight of Mr. Elderkin's career was the presentation of the TAPPI Gold Medal to him in 1959 for "outstanding contribution to the technical advancement of the pulp and paper industry." Among his achievements mentioned in the Medal's citation were his work on the development of the vacuum pickup on the kraft paper and newsprint machines and his design of the log storage ponds at Crossett and Calhoun.

In 1950, Mr. Elderkin went to Austria as a consultant to the Economic Co-operation Administration for the rehabilitation of the Austrian paper industry.

D. M. Tanguay

Monadnock Appoints New Technical Director

Donald M. Tanguay has been appointed technical director of Monadnock Paper Mills, Bennington, N. H.

Dr. Tanguay received his B.S. degree in physical chemistry from the University of Notre Dame in 1954. He received his M.S. in physical chemistry from the University of Heidelberg, Germany, in 1955. He received his Ph.D. in physical chemistry at Yale University in 1957.

After separation from service he worked on research and development, filtration, at Cuno Engineering Co., Meriden, Conn. From 1958 until September 1960 he was project leader, research and development, at the West Verginia Pulp and Paper Co. in Luke, Md.

R. O. Murray

J. E. Fitzgerald

Brown Announces Production Promotions

Promotion of Reginald O. Murray and J. Edward Fitzgerald to production superintendent and assistant production superintendent, respectively, at Brown Co.'s Cascade paper mill have been announced.

Mr. Murray has been assistant production superintendent at the Cascade mill since February 28, 1954.

Mr. Murray worked at Brown during the summers of 1923 and 1925, then became a regular employee at the research department. In 1926 he was transferred to the Riverside mill and held various positions on paper machines there and at Cascade.

Mr. Fitzgerald, who takes over as assistant production superintendent, has spent his entire working career at the Cascade mill as a papermaker. He was first employed by Brown in 1918 as fifth hand on the Cascade paper machines. He became boss machine tender in 1948 and machine room supervisor in April 1950.

Baade Joins Huyck Felt

Donald Baade, a graduate of the University of Maine, where he carried out graduate study on the flow of presuspensions, has joined the Huyck Felt Co. Pennsacolor, N. Y. Previously Mr. Baade was paper mill control engineer at Anglo Newfoundland Development Co. of Grand Falls, Newfoundland, where he worked on paper machine projects, the last of these being a study of the paper machine drives in conjunction with J. Mardon, then of the papermaking research group, Anglo Paper Products, using new equipment especially developed for this study.

Columbia Box Board Elects Vice President

The board of directors of Columbia Box Board Mills, Inc., Chatham, N. Y., at its annual meeting on September 17, elected James L. Salerno vice president. In his new position, Mr. Salerno will be in charge of finance and administration.

Mr. Salerno joined Columbia in 1954 as director of budgetry control, was appointed controller in 1958, and is also the vice president of the Columbia Box Board Mills Foundation.

Wiberg Joins CWP&P In R&D Division

William A. Wiberg has joined the Research and Development Division of Consolidated Water Power & Paper Co.

Mr. Wiberg will serve as a project engineer. A native of Neenah, he is a graduate of the University of Wisconsin and the Institute of Paper Chemistry where he received a Master's Degree in paper chemistry.

Weston Paper Promotes Meighen

The Weston Paper and Manufacturing Co. has announced that A. D. Meighen has been named assistant plant manager of the firm's .009 corrugating medium mill at Terre Haute, Ind. Mr. Meighen has been technical director at this location since 1955 and will continue in charge of the plant's Technical Department. The company is currently in the process of constructing a completely new and modern semichemical pulp mill at Terre Haute and will convert from straw to pulpwood early in 1961.

The company's Mill Division also operates a jute liner mill at St. Marys, Ohio; and its Wabash Fibre Box Co. Division operates corrugated box plants at Terre Haute and Chicago, Ill. A new box plant is currently nearing completion at Ft. Wayne, Ind.

James Retires from New York and Penn

Kenneth R. James, a native New Yorker, has retired from his position as assistant treasurer and assistant secretary of New York & Pennsylvania Co., Inc.

Mr. James has completed a lifetime business career of 49 years with New York and Penn. He started as office boy in 1911 when he was 16. At that time the company was headed by its founder and president, Col. A. G. Paine, and the New York office was located at 200 Park Ave.

A. Welch

Welch Named V-P Price Bros. Paperboard

A. C. Price, president of Price Brothers & Co., Ltd., has announced the appointment of A. Welch as vice president and general manager of Price Brothers Paperboard Corp., a subsidiary of Price Brothers & Co., Ltd. This subsidiary will handle all sales of paperboard, kraft and specialty papers manufactured at both Price Brothers and J. C. Wilson paper mills. Mr. Welch will remain as a director of J. C. Wilson, Ltd., of which he was formerly vice president—marketing.

McEwing Joins Sanitary Paper Mills

Walter McEwing has joined Sanitary Paper Mills, East Hartford, Conn., as general superintendent. He will be in complete charge of all papermaking, converting and shipping. Mr. McEwing was formerly with Vanity Fair Paper Mills as superintendent at the Plattsburg mill.

"Boy, how this BIRD-JONSSON Screen puts through the stock!"
"yep. A hundred tons a day"
"And at 85% consistency"
"That means 1750 gallons per minute"
"And to think it needs only 16 square feet of 1/4" perforate plate screening area"

The speed at which the Bird-Jonsson Screen handles the stock is only part of the story. It delivers good, clean fibres with minimum loss in the rejects; uses only about six hundredths of a horsepower per ton.

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CANADIAN INGERSOLL-RAND COMPANY Limited, Montreal

BIRD-JONSSON SCREENS

NEWS OF CONVERTERS

Milprint Dedicates West Coast Plant

Milprint, Inc., formally dedicated on October 8 a 57,000 square foot plant, which consolidates its West Coast activities in one $3,000,000 facility. Milprint, Inc., is a subsidiary of Philip Morris Inc. The new plant, adjacent to Milprint's existing South San Francisco plant, brings to almost 100,000 square feet the production and office space now located under one roof on Milprint's five-acre site.

The new plant will print and convert packaging papers, films and aluminum foil. Basic research in package forming and design is done at Milprint's Milwaukee, Wis., headquarters.

The plant offers the most up-to-date equipment available, including a seven-color rotogravure press and a six-color flexographic press, bag-forming machines for a variety of materials, and laminating equipment. Polyethylene extruding equipment is shortly to be installed. Milprint also has plans to install additional bag-forming and press equipment in the coming months.

Mead Launches New Products Division

The Mead Corp. on October 26 formally launched in Cincinnati, Ohio, its New Products Division, devoted to development of packaging systems. In announcing the new unit, D. F. Morris, Mead president, said: "The New Products Division, taking advantage of new technology and new concepts of management, emphasizes the systems approach in the packaging industry. It studies packaging problems from the manufacturer's production line to the consumer.

In the interest of assuring maximum efficiency, Mead's Technical Services Department occupies the same building as the New Products Division. It tests materials and packages for strength, resistance to abrasion and puncture, the effects of heat, cold, moisture, and other environmental factors, the capacity of various adhesives to hold the package together, and the effect of rough handling on the package.

Also in the same building is a pilot plant where prototype machines to manufacture, assemble, fill, and seal containers are constructed and tested. This work is directed by the division's own engineering department.

The company president noted that the New Products Division is backed by the Mead Research Center, in Chillicothe, Ohio, one of the largest and best equipped in the paper and pulp industry, staffed by some 200 scientists, engineers, and technicians.

Allyn C. Beardsell, associated with Container Laboratories, Inc., for ten years and its president for two and one-half years, is director of the new division. Author, instructor in packaging at New York University, and packaging consultant, he is a widely respected figure in his field.

Projects for the New Products team are presented by Mead salesmen who hear about customer problems during their rounds, by others in the Mead organization, or by the customers themselves. Proposals go through the following steps:

1. Exploration. Collection of ideas and the encouragement of submission of ideas from all sources.

2. Screening. The New Products team examines the concept from the standpoint of feasibility, sales potential, and various technical criteria. The director decides whether the idea is worth pursuing.

3. Evaluation. If the proposal still seems to have merit, a careful examination of design concepts, patent situation, the market, risks, competitive products, chance of return, and cost of development is undertaken. If affirmative, the decision goes to Mead's top management Products Committee for approval.

4. Development. A system for handling the problem, including the creation of an appropriate package and packaging machinery, is developed.

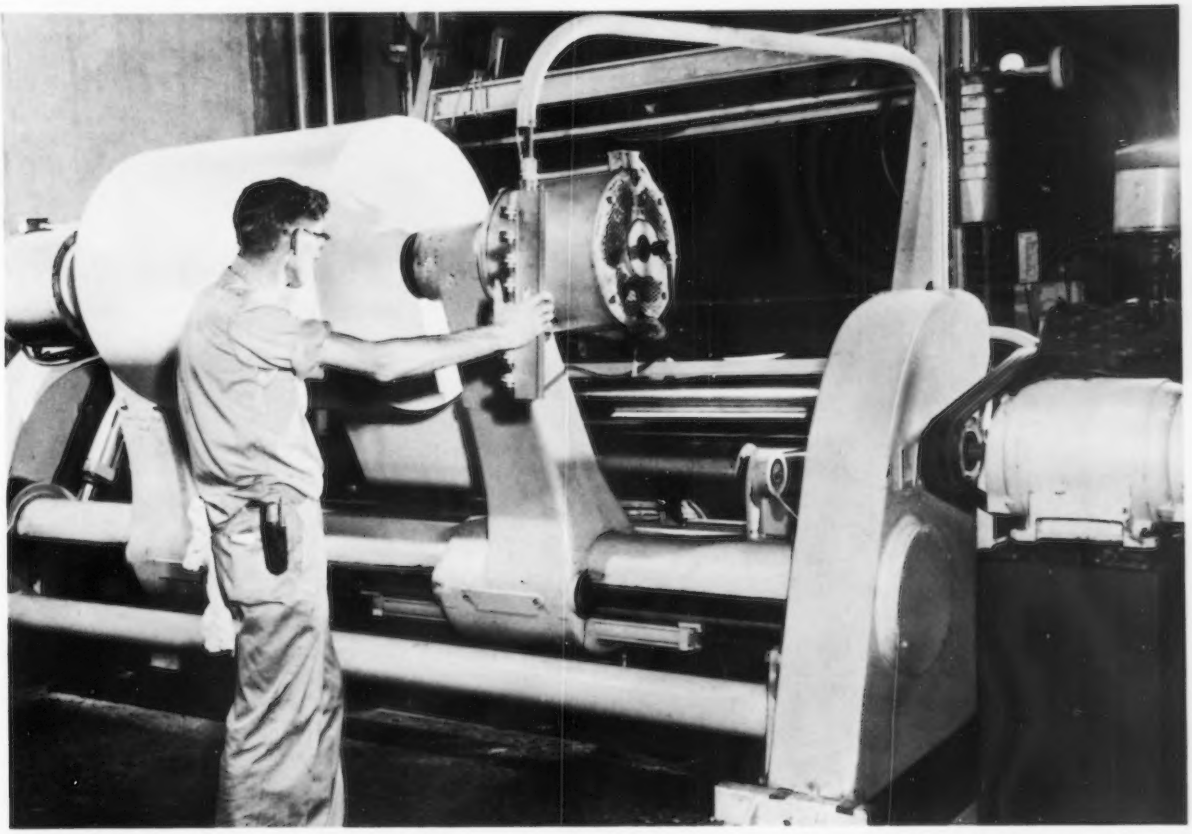
5. Test Marketing. The project is examined to solve cost, manufacturing, pricing, and marketing problems, as determined from pilot production.

6. Commercialization. The idea goes to one of Mead's manufacturing facilities for full-scale production and marketing. Mr. Beardsell noted that this is not just a blueprint for operations. The system has already been applied to the development of several new products.

BRONZE OSCAR - OF - INDUSTRY for the best annual report in the Paper Products Industry is presented to Robert N. Wallis (left), vice president and treasurer of Dennison Manufacturing Co., Framingham, Mass., by Richard J. Anderson, Editor and Publisher of "Financial World," at the Annual Report Awards Banquet held recently at the Statler Hilton Hotel in New York City.

(Continued on page 38)

THE Langston Leader
PAPER MILL EDITION
Leadership...by design
SAMUEL M. LANGSTON CO. • CAMDEN 4, N. J.
OCTOBER, 1960 | *Published for the information of paper and board mills* | VOL. 2, NO. 6



PACIFIC NORTHWEST DEBUT. Langston hydraulic shaftless unwind stand at Potlatch Forests, Inc., Lewiston, Idaho, has helped increase rewinder production by as much as 50 percent. Saves manpower, time and waste. No heavy shaft to handle. No cone tightening. No crane needed to lift rolls, just simple pushbutton control of the entire roll loading operation.

On Rewinder at Potlatch Forests

Unwind Stand Helps Improve Roll Quality, Cut Waste In Narrow Slitting and Production of Salvage Rolls

The Lewiston, Idaho, mill of Potlatch Forests, Inc., has been able to increase its rewinder roll production by as much as 50 percent as the result of installation of a new Langston shaftless unwind stand behind a 102-inch rewinder.

In addition, the new installation has improved the quality and efficiency of the company's narrow slitting and salvage roll production.

Previously, the manpower for this operation had been "borrowed" from other mill functions as the opportunity presented itself. To meet customer demands for specially slit rolls, as well as for salvaging of slipped rolls or rolls otherwise damaged from the paper machine winders, the new installation was added.

• • •

The work requirements of the operation would not justify full-time shift operations so improved efficiency was sought *and found* in the shaftless stand.

The rewind-unwind units handle bleached sulphate board for use in the manufacture of milk cartons, paper plates, cups and similar products. Weight of the board ranges up to 300 pounds per 3,000 square feet.

The principal advantage experienced so far is the ease and speed with which the operator can get his rolls ready to rewind. The operator can have a roll ready to rewind in the matter of a minute or so.

With the individual brakes mounted on each arm, control of roll density is improved considerably on the rewinder.

Manual handling of the heavy shafts and cones, previously required to ready a roll for rewind, is no longer necessary, thereby eliminating a tedious, difficult and potentially dangerous part of the operation.

The hydraulic cylinders of the Langston stand provide the power for clamping, a job formerly accomplished by manual cone tightening. The hydraulic cylinders apply higher chucking pressure, insuring against slippage of the roll in the cone. Slippage can result in damage to the core, or to the roll itself if no core is used.

• • •

The rolls are lifted by a quick, gentle hydraulic action, controlled by push button. Parent rolls as small as 14 inches or as large as 60 inches in diam-

(*Continued on next page*)

eter can be picked off the floor.

Lateral adjustment for aligning a new roll with rewinder slitters also is accomplished quickly through remote control.

Even if rolls as narrow as 10 inches or 12 inches are on the unwind stand, rewinder speed need not be reduced as is required with shaft type unwinds where shaft deflection is aggravated by out-of-rounds rolls.

The net result is higher average operating speeds regardless of parent roll width or condition.

• • •

To accommodate the wide range of board grades it is important to have a variety of cones. For lighter grades a small diameter cone is needed to get as much board as possible on a roll. On heavy grades very much larger cones are used to prevent curl at the center of a roll.

The Langston shaftless stand at Potlatch has seven different size cones ranging from 4 to 16 inches in diameter. These are easily and quickly changed by means of a single bolt located at the center of each cone.

Perhaps your rewinder efficiency can also be improved. If so, we would like to discuss it with you. Write to Samuel M. Langston Company, Camden 4, N.J.

Rolls with collapsed cores become very difficult and sometimes impossible to put a shaft through for standard shaft type unwind stands. This sometimes means that perfectly good paper has to be sent back to the beaters for reclaiming.

• • •

With the tremendous squeeze pressure available on the Langston hydraulic shaftless stand, the cone chucks can be forced into these badly collapsed core openings, resulting in considerable increases in board salvage.

ACCESSIBLE ARRANGEMENT makes it easy for operator to handle splices or indicate faults. Sensing head of side register control is in foreground.

The Potlatch stand is equipped with Langston pneumatic side register control. This enables the operator to rewind badly slipped—telescoped—rolls without the need for taking trim.

The sensing unit is a continuously self-cleaning unit, which delivers its signal to a sensitive pneumatic diaphragm. The signal is then converted to actuate a hydraulic cylinder mounted between and attached to one of the two side frames.

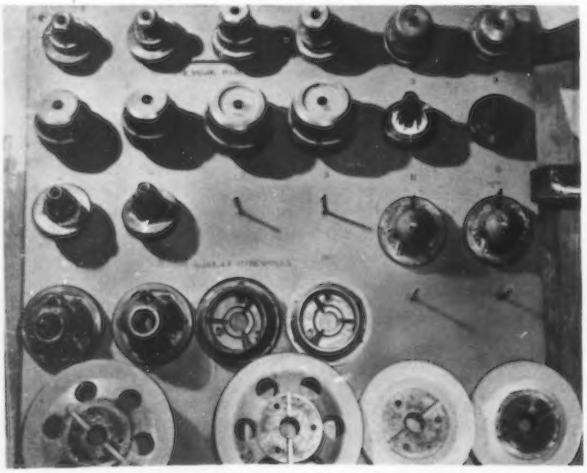
• • •

When the cylinder is actuated the stand and parent roll are moved laterally as a unit on ladder type bearings mounted under the frames. The design is very simple and effective.

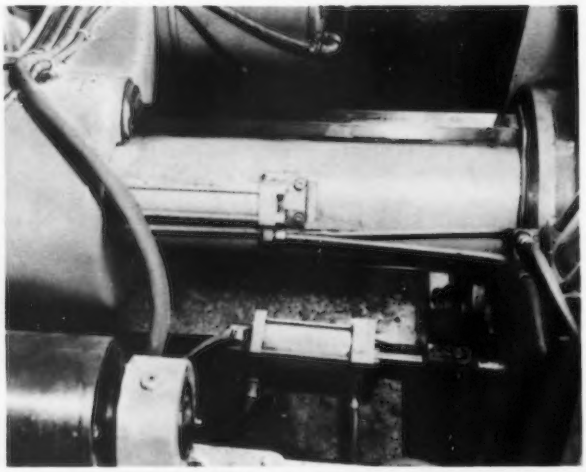
One benefit has been realized with installation of the shaftless unwind stand that had not been anticipated.

Because many paper grades are in direct contact with food, it was necessary for the rewinder operator to wash the grease and paper dust from his hands each time he shafted a roll. Since the shaftless stand does not require manhandling the rolls, considerable time-saving in this respect also has been realized.

CLOSEUP view of air-sensing mechanism.



ASSORTED CONES ON RACK accommodate wide range of board weights.



HYDRAULIC CYLINDER for automatic side register control.

Nearly 40 years ago, Albany Felt research technicians started treating certain felts with chemicals to improve felt quality and increase the production of paper.

Chemical treatments are now providing faster start-ups, improving finish, eliminating bacteria, increasing drainage and prolonging felt life.

Could our chemical treatments help you?

ALBANY FELT COMPANY
ALBANY, N.Y.

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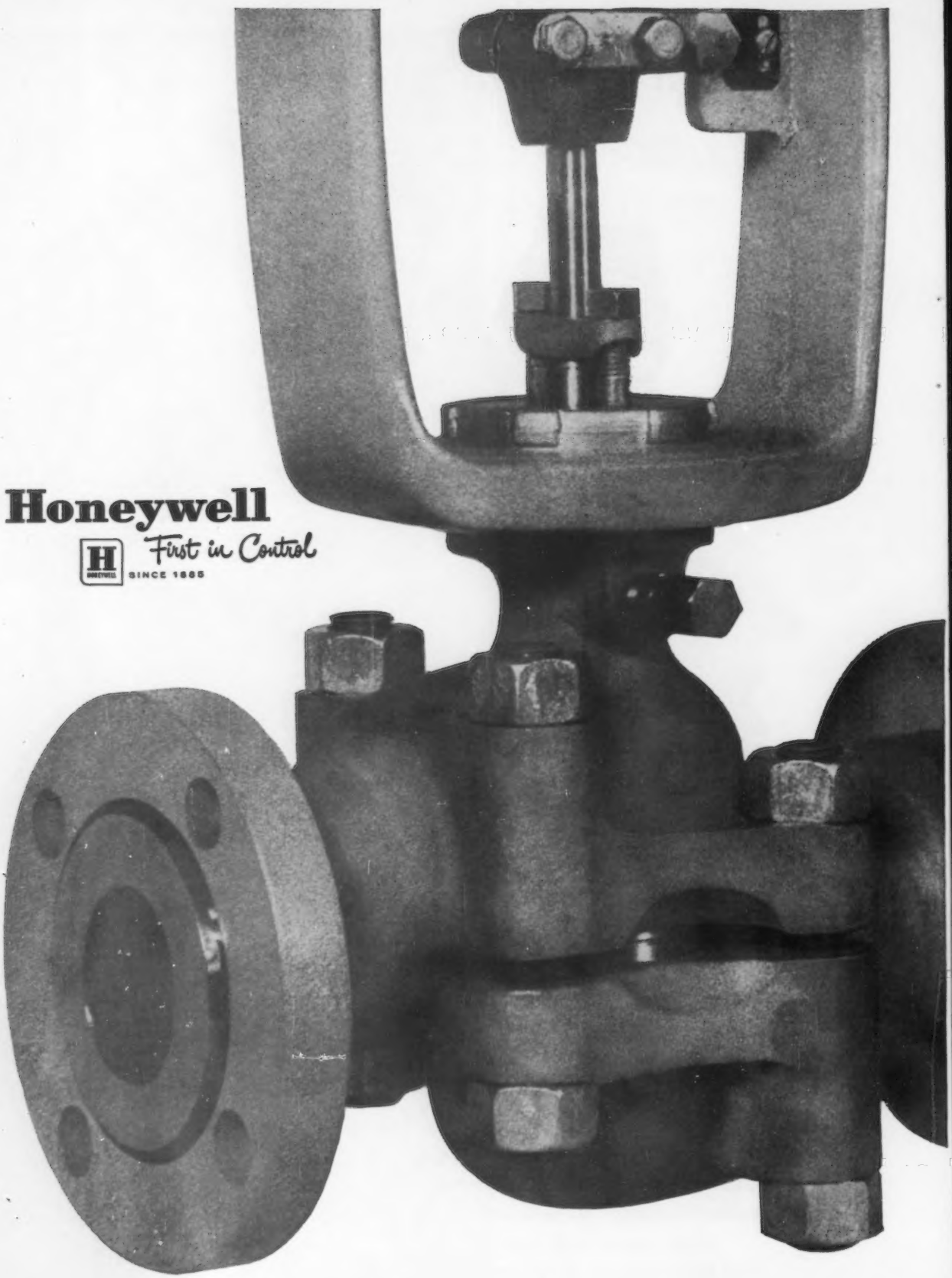
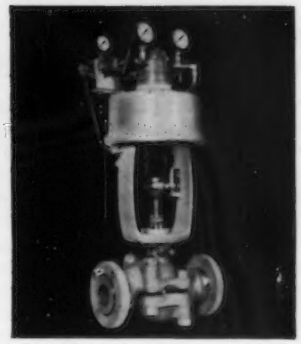
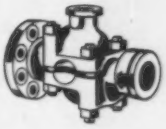
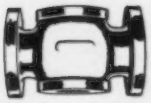
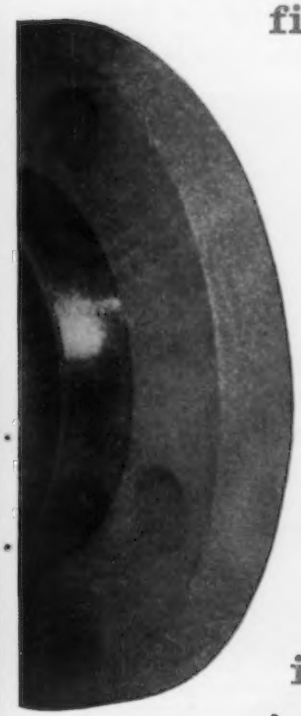

Honeywell
First in Control
SINCE 1885



Now, a new split-body valve makes possible a flexible intermix of Honeywell valves and actuators—a combination designed for both economy and perfect matching of valve to application. For example, you can get the split-body valve with cost-cutting, clamped-in seat rings, separable flanges and the new cylinder actuator. Or perhaps your application calls for the split-body with fixed flanges and the economical diaphragm actuator. With high temperatures, you'd probably prefer this globe body valve, with either the cylinder or diaphragm actuator. In any case, the completeness of the Honeywell line lets you select the valve-actuator combination that's exactly right for the job... without pushing a valve beyond its design limits, without paying for more than you need. Write for Bulletin B-802-1.







75th YEAR PIONEERING THE FUTURE

Minneapolis-Honeywell, Fort Washington, Pa.

NEWS OF CONVERTERS

(Continued from page 34)

Resident Manager Named For Bemis Tekmold Plant

J. E. Zeller has been appointed resident manager of the Tekmold plant of the Bemis Bro. Bag Co. Mr. Zeller, who joined Bemis in 1940 at its Packaging Service machinery unit, has served, during the past eight years, as a project engineer at the company's department of physical research in Minneapolis.

The present Tekmold plant is located in Minneapolis but the company has announced construction of a new plant at Muskegon, Mich., for the manufacture of the molded pulp products.

Eaton Names Getman Pres.; Dutton to Retire

Burrill M. Getman, vice president for marketing of the Gorham Manufacturing Co., has been elected president of the Eaton Paper Corp., Pittsfield, Mass., a subsidiary of Gorham. Mr. Getman succeeds Harry C. Dutton, who is retiring as president and has been elected chairman of the board of Eaton. Both changes become effective January 1, 1961.

Business Forms Inst. to Hold Production Seminar

A major step toward the solution of production problems in equipment and materials used in the development and manufacturing of manifold business forms will be taken, November 14-15, by the Business Forms Institute at its 1960 Production Seminar at the Hotel Biltmore, New York City.

The two-day seminar will see 20 or more companies represented by experts in various aspects of production, including materials handling, such as raw stock and in-process work as found in press rooms and binding operations. Recruitment and training of personnel, and practical approaches to both quality and production control will complete the opening day's sessions.

New commercial developments covering various equipment will introduce talks and a general panel discussion on November 15, to be followed by packaging and cartoning papers, with the afternoon session devoted to magnetic ink, optical scanning and current developments in both much-discussed fields.

The program committee, headed by Arnold Greenfield, Alfred Allen Watts Co., Inc., Allwood, Clifton, N. J., and comprising C. E. McKeen, Philip Hano Co., Inc., Holyoke, Mass., and J. E. Verral, Moore Business Forms, Inc., Niagara Falls, N. Y., has canvassed the manifold business forms industry, its suppliers and outstanding experts in allied fields to provide top grade talent.

H. C. Toney

Chase Bag Advances Toney To Project Engineer

Henry C. Toney has been promoted to project engineer at the Toledo, Ohio, plant of the Chase Bag Co. Prior to his promotion, Mr. Toney was assistant superintendent. He joined Chase in 1948 at the Crossett, Ark., plant and was transferred to Toledo in 1953. His engineering studies were conducted at Arkansas A. and M. and the University of Toledo.

The Chase Bag Co. manufactures and markets a variety of flexible-packaging products for industrial and consumer applications. Its Toledo plant produces paper bags, most of which are of the multiwall type.

Expansion Announced at Buffalo Box Plant

The U.S. Corrugated-Fibre Box Co. has announced plans for an expansion of its Buffalo, N. Y., plant at a cost of approximately $200,000.

The expansion encompasses installation of new machinery on which work already has started. Construction will start shortly on a new warehouse, about 160 by 70 feet, at the Hopkins St. plant site.

Frank R. Lund, Buffalo Division sales manager, said there has been a steady increase in the plant's production during the past three months. He added that he anticipates "continued good buying activity, extending well into late spring."

Georgia-Pacific Selects Olympia as New Plant Site

Georgia-Pacific Paper Co. has announced its selection of Olympia, Wash., as the site for its new $1½ million corrugated box plant. Construction of the 120,000-square-foot converting facility has commenced in the Lacey area of Olympia and the company has started hiring key personnel. Plans call for completion of the plant in March. Its capacity will be 25 million square feet of finished product monthly.

Production manager will be Charles Boddy, a 27-year veteran of the industry, who is currently guiding construction. A sales manager and other key personnel will be announced shortly. Sales vice president A. G. Naudain at the company's Portland headquarters is processing applicants.

Using containerboard from Georgia-Pacific's Toledo, Ore., paper mill the Olympia plant will make a complete line of standard corrugated boxes and special containers, including specialties for food, beverage, agricultural and industrial packers. A contract for Hooper-Swift processing machinery has been let to the metal products division of Koppers Co., including a combiner, printer-slotters and Glu-Lok folder gluer equipment.

The corrugator will be an 87-inch A & B flute machine capable of 650 lineal feet a minute of corrugated board. Printer-slotters, equipped for a wide variety of color printing, will handle corrugated sheets up to 50 by 113½ inches. They are the new "900" series.

Fitchburg Breaks Ground For New Decotone Plant

Groundbreaking ceremonies for Fitchburg Paper Co.'s new Decotone plant were held October 29, at 10 A.M., in Westminster.

George R. Wallace, 3rd, president and treasurer of the company, announced the awarding of a contract for the initial construction phase of the new building to the firm of H. Vincent Lindberg of Fitchburg. The amount of this contract is $736,000, and will be followed in the near future by separate contracts covering the electrical and mechanical phases.

John Grado, in charge of operations at Decotone and vice president of the company, indicated that construction will start immediately, with completion scheduled for May 1, 1961.

VARIETY OF JOBS IN PAPER INDUSTRY

BEST HANDLED

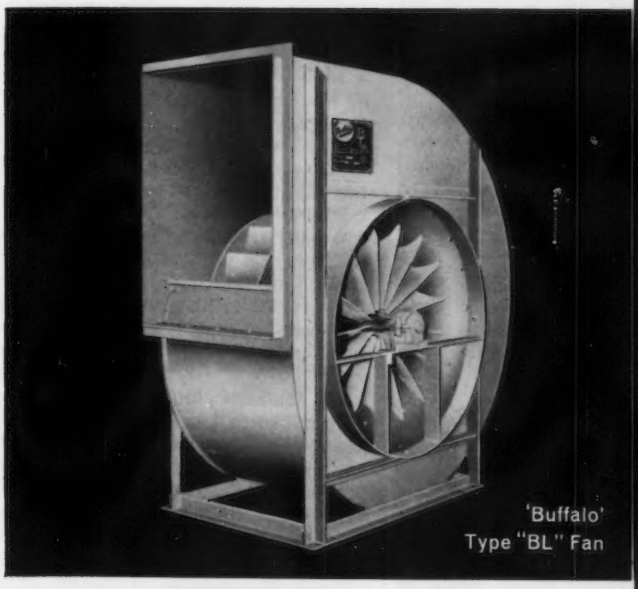
WITH THESE 'BUFFALO' FANS

Corrosive Air Moving Jobs—'Buffalo' Resin-Bonded Fiber Glass Fans give excellent resistance to severe corrosive conditions. They are especially effective against salts, acids, gases, organic and other materials. Temperature applications range up to 250° F. Constructed of impact resistant fiber glass, the fan housing is highly resistant to corrosion — inside and out. Among other advantages are light weight, reasonable cost and long, dependable life. Capacities up to 34,000 cfm at pressures up to 10" static. Write for Bulletin FI-511.

General Air Moving Jobs — 'Buffalo' Type "BL" Fans are the quality standard of the paper industry for moderate pressure ventilating, air conditioning and air cleaning systems. Peak efficiency, quiet performance and economical operation are the result of careful engineering from inlet through wheel to housing. Stable output is maintained from free delivery to shutoff. Extended maintenance-free life is another important advantage. Capacities to 500,000 cfm. Send for Bulletin F-104.

There's a quality 'Buffalo' Product for almost every need in the paper industry. We manufacture a complete line of fans and blowers in all types and capacities . . . plus a full range of air conditioning cabinets, air washers and air cleaning equipment.

Whatever your air moving needs, call in your nearby 'Buffalo' representative. He can help you solve problems — economically — that others won't even attempt. Or write us direct.



'Buffalo' Type "BL" Fan

'Buffalo' Fiber Glass Fume Fan

"Buffalo"

AIR HANDLING DIVISION

BUFFALO FORGE COMPANY

Buffalo, New York

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

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'Buffalo' Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier Machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

Progress Report on Mill Experience With Needled Felts

A frank report on the results obtained at nine mills which have run the new needled type of paper machine wet felt fabric.

James E. Smith,
Sales Manager,
Albany Felt Co.

Perhaps the most interesting development in the papermakers' felt field in recent years is the relatively new needled felt construction. It is most interesting primarily because in certain applications the needled type felt performs the function of water removal better than conventional woven felts; in other applications it provides improved finish to the sheet.

However, in many cases no advantage is realized. Among all makes there is a fairly high percentage of failures. Needled felts are still in the research and development stage. For example, in the different felt companies making them, manufacturing techniques are being improved to reduce a tendency toward size instability. Correct size is perhaps the most important single factor in the good behavior of a felt. If it fits, that's half the battle. High standards of uniformity in felt length and width, in openness and in strength from felt to felt are necessary for high speed, quality production on the paper machine and, frankly, the new construction has not always measured up to those standards.

How They are Made and Work

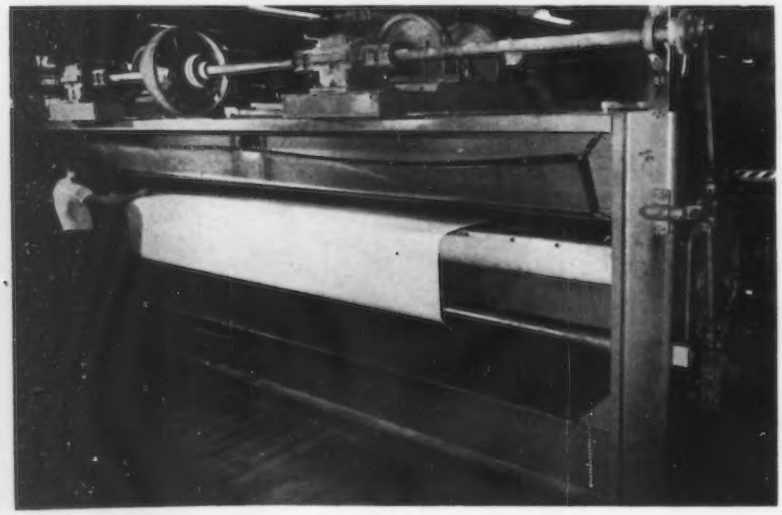
Before we review some of the performances of these needled felts in various mills, before we try to analyze the reasons for their successes and failures, here is a brief description of the construction:

Durasorb felts consist of a woven base fabric similar to a conventional felt into which a loose web of carded fibers is needled. The web is formed by blending and carding wool and synthetic fibers, and is laid on the base just prior to passing through the needling machine.

Improved drainage or water removal results from the capillary or wicking action of the vertical fibers, and from the more open weave possible in the base fabric. A needled felt has more absorptive powers than a conventional felt. It not only absorbs water more readily, it also releases water readily to a suction box.

Improved finish usually is possible because the twisted yarns are hidden in the base and a smoother cushion meets the sheet. The fleecy web, needled in, provides innumerable, very minute fiber contacts with the sheet, in contrast to the coarser yarn contacts of the conventional felt. However, problems sometimes arise from the coarse base striking through, depending upon the nip pressure and the nature of the base weave. The base fabric has to be fine enough to provide the necessary finish. The web provides water absorption and wear resistance. Despite the possibility of the fibers working loose and into the sheet, without doubt improved finish is one of the customer benefits of this construction. Insofar as improved felt life is concerned, a stronger base fabric can sometimes be used, and the synthetic-content web resists frictional wear.

Albany Durasorbs make up a large share of the needled felts being run throughout the United States, but the following case histories also include performance reports on other makes.



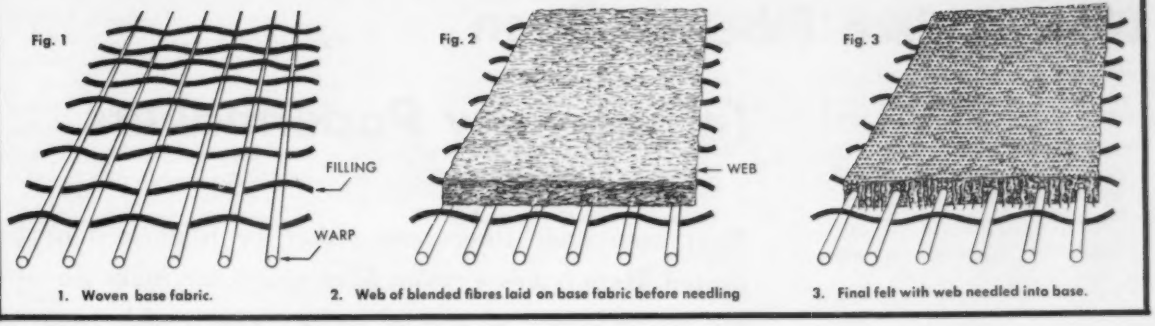
One of the large needling machines at Albany Felt Co. on which thousands of barbed needles push the web into the base fabric.

Experience on Board Machines

On a multi-cylinder machine running gypsum liner, the operators say needled bottom felts have enabled higher speeds, better quality, improved water removal. Very enthusiastic about their performance, they plan to extend the three week life cycle to four weeks. In another gypsum mill a third press felt gave 22 days of good performance. The felt shed fibers at first but settled down.

In a Middle West board mill a needled top felt ran 40 days, about double normal life, most of the time with a needled bottom. For some reason, drainage suffered by running both felts together, and finish from

STEPS IN NEEDLED FELT CONSTRUCTION



1. Woven base fabric. 2. Web of blended fibres laid on base fabric before needling 3. Final felt with web needled into base.

the top was not as good as provided by woven felts. In spite of phenomenal life the customer is not yet convinced needled felts are the answer.

On a multi-cylinder board machine making liner a Durasorb bottom felt ran 19 days, compared to an average life of two weeks. The superintendent was very pleased with finish, drainage and over-all performance. However, on heavy weight grades after the felt was one week old, finish qualities deteriorated. Drainage also was adversely affected by the heavy grades.

Three Tissue Mill Reports

At a tissue mill in the Northwest, the superintendent reported the latest Durasorb bottom felt on the Yankee fourdrinier was the best felt he has ever run as far as all-around performance, lack of felt impressions and shell mark.

In a large Eastern tissue mill they have used three needled felts on the pickup position of high speed tissue machines. Operation was excellent but the first two wrinkled and came off early. It was believed this was caused by a failure of the join in the base fabric, but a later felt with a modified base and join ran only four days and went into a wrinkle.

On tissue grades an efficient mill on the West Coast using a Stevens former type machine averaged about 11 days felt life with conventional woven felts. Trying needled felts, they got up to normal operating speed of about 1000 feet per minute in less than two hours with fine performance. Minor modifications in subsequent felts were required but now they have standardized on needled felts. They run with about 10 per cent less steam consumption, no blowing or crushing, and the sheet picks up better. Production per day has increased, and felt life averages about 18 days. The quality of paper from the needled felt is considered by the superintendent to be superior both in formation and finish.

Results on Other Grades

On a pulp drying fourdrinier in the Northwest needled felts stay amazingly open and give long life. As a rough check they time, with a stop watch, the number of seconds it takes the water coming out at the press (through a weir) to fill a 12 quart pail. After 30 days with our Durasorb felt the pail filled in 11 seconds. After 118 days, it still filled in 12 seconds! The felt ran a good three times normal life.

In a mill making nine point on both a two press fourdrinier and a dual press they now have needled felts on all three positions and they are running well, with excellent felt life, gaining six tons per day in production on each.

At a California mill making roofing felt they were getting what they considered to be good performance and life from conventional felts. Experimenting with a trial needled felt they noticed a good improvement in finish but the felt ran long and slack. Continuing their experiments they learned they could run all grades, even corrugating medium on needled felts with little trouble. Life was up, felt costs down. They were about to standardize on them when they ran into trouble keeping the felts clean. Also, whenever a wad of paper stock broke loose it punched holes in the needled felt in a way that was not done with conventional felts. The more expensive fabric and the higher accident hazard made felt costs increase. This mill is changing back to conventional woven felts.

Summing up Results

In summarizing, the multi-cylinder machine is probably one area which will find increased applications. Production of corrugating medium appears to lend itself very well to the use of needled felts because of improved finish, improved test properties in the sheet and better water removal. Durasorb type felts also seem to perform very satisfactorily because of excellent drainage and improved finish on pulp drying fourdriniers and fourdrinier tissue machine wet felts.

They have not yet been widely proven on roofing, on tissue machine pickup positions nor on board machine top felts when run in conjunction with a needled bottom felt.

It is still too early to have completed all the necessary technical observations, measurements and interpretation of the operation of Durasorb felts along engineering and scientific lines. One of the major difficulties is the wide range of variables involved. As most mills recognize, the costs of labor, steam, rejects and other overhead items far outweigh the clothing costs. Felt costs will always be an important consideration in operating a mill, but these other costs are often greatly affected by felt performance, and the "big picture" should be evaluated. The value of any felt—needled or conventional—cannot be determined by its cost alone, nor the days life, but rather by what it saves in increased efficiency and production and quality. Boiled down this theory is best expressed in the objective: more saleable tons per day.

Based on reports, Durasorbs have been successful in approximately 80 per cent of the applications where they have been tried, good performance for such a new product. As experience is gained, including knowledge on applications where the construction is not suitable and should not be used, this percentage will improve. We are sure that for many applications needled felts can be of real value to the papermaker, and a good way to explore the possibilities is to discuss them with your felt sales engineer.

New Avisco Fiber Is Boon To Specialty Papermakers

Most man-made fibers can either be fibrillated or hydrated. Here is a new rayon fiber which can make possible the manufacture of special papers with a wide range of properties.

Howard E. Shearer,
Industrial Division,
Technical and Textile Service Dept.,
American Viscose Corp.

A new rayon fiber that makes possible for the first time the manufacture of paper from 100 per cent man-made fibers without the necessity of working the fiber, or adding pulps, fillers, or bonding agents other than water to form a slurry has been developed by American Viscose Corp. The introduction of the new Avisco fiber comes on the 26th anniversary of the commercial use of viscose rayon in the manufacture of paper.

Known as RD-101, it is a short, multi-cell rayon fiber with unique properties found in no other fiber, either natural or man-made. When formed into a wet-laid web and dried, these nonthermoplastic, multicellular, cellulosic fibers firmly bond themselves and lock in place other fibers with which they are intermixed. This characteristic means they can be used to produce papers of 100 per cent RD-101 fibers or in a blend with other fibers or pulps. It makes possible a wide range of textures and physical properties, either with or without the addition of other bonding agents. These properties may be controlled at will with the different descriptions of viscose rayon being produced in lengths suitable for processing on paper-making equipment.

TABLE I
PHYSICAL PROPERTIES OF HAND SHEET CONTAINING RD-101 FIBER

% RD-101	100	100	100	100	5	10	——
% Bleached Kraft	——	——	——	——	95	90	100
Basis Weight, lbs. (25 x 40 — 500)	7.4	18.0	42.5	50.0	104	108	107
Caliper, (Mils)	1.3	2.0	4.5	4.9	9.9	10.1	10.0
Breaking Length, meters	2811	3724	3558	3300	4749	4470	4389
Burst Factor, Mullen	29	28	46	42	43	43	40
Tear Factor, Elmendorf	207	185	179	142	209	196	192

Note: RD-101 fibers of 1.5 denier, ¼ inch type used in above hand sheets with no additives or binders. Breaking length is the length in meters of a strip of paper, the weight of which equals the breaking load. Pounds per inch break = (breaking length) x (ream weight) x 7.9 x 10-5. Burst factor = (50 x Mullen burst) ÷ (ream weight). Tear factor = (50 x Elmendorf tear) ÷ (ream weight).

Types Of RD-101 Fiber

Fiber RD-101 is available in commercial quantities as a 1.5 denier ¼-inch high-bonding type. This description wets out readily and disperses freely without flocculating. In a dilute papermaking slurry in which the uniformly cut fibers are given a minimum of stirring, it does not string, pill or lump.

It is also possible to obtain RD-101 in a wide range of other deniers and fiber lengths and with low, as well as high, bonding strengths. The heavier deniers produce less dense sheets of lower strength per unit weight.

The lower bonding types produce soft, opaque sheets with ample fiber cohesion for processing the wet web across the paper machine. Variations, such as bleached fiber or dull fiber, can also be made available.

By using the basic procedures which follow, the high-bonding RD-101 rayon fiber in a 1.5 denier, ¼-inch type will produce a dense, strong, crisp, scuff-resistant sheet of paper.

Preparation Of Stock

RD-101 is baled and shipped as a matted crumbly mass of dry fiber which wets out quickly, swells, and separates when placed in a water slurry. If necessary to reduce the level of overlength and chip fibers which occasionally may be present, a 10 to 15 minute beat in a Hollander type beater at 1.5 per cent consistency is recommended.

The preferred method of working RD-101 in the paper mill for introduction to the web-forming machine is governed by the end use of the material to be made. To separate and reduce any overlength fibers without excessive cutting or pilling, the turbulence provided by a hydrapulper or pulpmaster is preferable to that of a beater.

Introducing Additives

Various wet strength bonding agents, color pigments, and fillers are most conveniently added to the stock in the pulper or beater. The time it takes for these to disperse thoroughly throughout the stock governs the length of time it should be held

before slushing over to the chests and into the headbox of the papermaking machine.

Where additional wet strength is desired, the use of conventional wet strength agents will provide this. If higher wet and dry strengths or toughness of a more permanent nature are of interest, the beater, or size box addition of larger quantities of bonding resins can be used to advantage.

Stock consistencies of about 1.5 per cent are recommended in the pulper and beater. This should be reduced to between 0.1 per cent and 0.3 per cent at the chests and to 0.02-0.10 per cent at the headbox. Consistencies at the headbox will frequently be found limited to pump capacity, machine speeds, or web weights. Consistencies, time, and severity of processing to employ from bale to headbox is largely an art based on experience and existing conditions at the time of the run. There is evidence that as little as 10 per cent RD-101 in a furnish of unbeaten pulp, as used for making high-bulk low density products, will be of material assistance in getting such a furnish across the wire of the fourdrinier.

Formation Of The Web

For forming the web, fourdriniers, modified cylinder machines or Rotoformers can be used. Each has favorable and unfavorable features for the processing of ¼-inch fiber. Whichever is available in a particular mill will govern the choice.

With the fourdrinier, the use of a short tri-wire or inclined screen arrangement at the head end is recommended for securing uniform formation with long fiber stock. Such an arrangement with strategically located suction boxes is most essential when running the lighter weight porous sheets calling for extra high dilutions at the headbox. It gives better fiber distribution control and does away with the pulsating wave effects so frequently noticed with the flat wire.

Pressing Important

The RD-101 web as it comes from the wire has cohesion superior to that of the best highly beaten papermaking pulps. However, to utilize to best advantage the bonding properties of RD-101 and secure maximum strength in the web, it should be given a light press as it comes from the wire. This helps collapse the thin walls of the cells in the fiber, improves the cohesiveness of the web, and promotes bonding of the fibers on drying. The web should be removed from the wire by contact with a pickup felt, and conveyed between it and a top press felt through the press rolls. Usually only the single press is necessary, but two presses give increased strength. Since running the wet web in direct contact with the hard smooth surface of the first press roll frequently results in sticking—making it difficult to remove a continuous running, unbroken, smooth web to an intermediate saturator or the dryers—use of a top press felt or boot around the press rolls is recommended.

If an intermediate saturator is used to impregnate the web with suitable additives for additional strength, this should be followed by a similar felt-covered arrangement if it precedes the final dryer section.

In the dryer section, conventional dryers or a Yankee dryer may be used. To reduce "picking" it would be well to have the first several dryers Teflon coated and run relatively cool. As shrinkage may be a problem, careful control of temperature and draw in the dryer sections must be maintained. The dryer temperatures should be kept down to 200°F., with the first and last several dryers well below this temperature. The drying capacity to employ will naturally depend upon the speed and weight of sheet being run.

TABLE II
PHYSICAL PROPERTIES OF RAYON PAPER SHEETS AFTER ZINC CHLORIDE TREATMENT

	95% XL Rayon 5% RD-101	75% XL Rayon 25% RD-101	40% XL Rayon 60% RD-101	50% Regular Rayon 50% RD-101
Treatment Time (Seconds)	30.0	120	10	30
Ream Weight (Lbs.)	52.3	46.7	51.3	48.4
Gauge (Mils)	8.9	6.2	5.1	4.0
Breaking Length (M)				
Dry	1820	3380	4508	3754
Wet	439	1029	1664	1493
Elongation (%)				
Dry	5.3	11.6	13.9	7.4
Wet	15.6	21.6	24.6	—
Mullen Burst (p.s.i.)				
Dry	46	52	52	46
Wet	17	31	31	28
Elmendorf Tear (gm.)				
Dry	647	737	342	219
Wet	222	344	379	302

Note: All fibers used were 1.5 denier, ¼ inch. No other materials present: bonding of the untreated sheets due to the RD-101 fiber present. All samples immersed in 60% $ZnCl_2$ at room temperature for time indicated.

Zinc Chloride After Treatment

If an exceptionally strong and stiff sheet is desired, a unique property of RD-101 makes this possible through use of a special after-treatment. Experiments have shown that paper sheets composed of rayon fibers can be subjected to an after-treatment in a zinc chloride solution, which considerably improves most of the physical properties of the paper or web, as illustrated in Table II. The treatment is most effective on papers of high RD-101 content, and at zinc chloride concentrations between 59 per cent and 63 per cent. The lower the RD-101 content, the longer is the required immersion time.

The after-treatment consists essentially of soaking the rayon sheet material in a 60 per cent $ZnCl_2$ solution at room temperature for a period of time; pressing out the excess solution; rinsing in water or dilute mineral acid solution; then pressing and drying in the normal way. Since only about 0.06 per cent zinc is retained in the treated material, it is possible to recover the greater portion of the zinc salt from the wash liquid by evaporation, or to utilize part of this liquid for the strong make-up.

Some Suggested Uses

Among the many uses suggested by the characteristics of wet-formed bonded webs made from RD-101 are the following: embossed, crimped and decorative papers; interliners; filters; mimeograph and carbon papers; condenser tissue; wiping tissue; wall covering; tapes; disposable diapers; and backing for vinyl coatings.

Engineers Reveal Data On New Developments

Freeness—continuous measurement and control
Calenders—instantaneous crown control
Drying—performance of high velocity dryers
Refiners—comparing different refining equipment
Finishing—recommendations for a modern operation.

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

• *Freeness*—One of the most challenging problems in our industry has been the development of a means of controlling and recording freeness continuously. Now an instrument for this purpose has been revealed, and indications are that it is extremely successful, having been installed and operated in Kimberly-Clark's production line for over 1½ years.

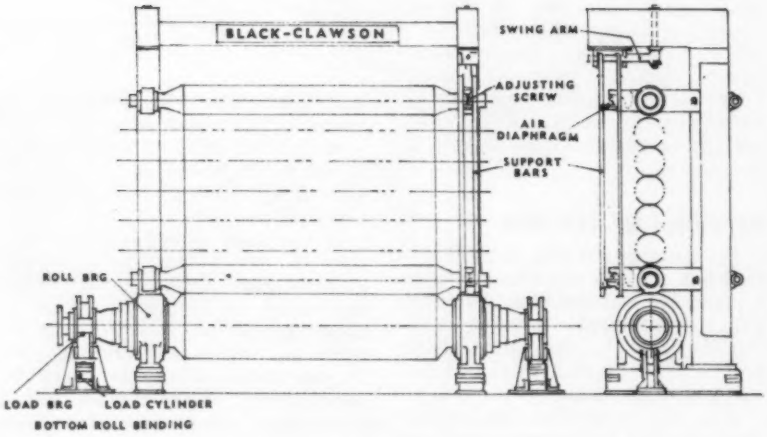
• *Calenders*—The primary problem in operating calenders is to obtain the proper crown to produce a uniform sheet. Now in commercial operation is a unique new calender with which the bottom roll crown can be varied and controlled accurately at will.

• *Refining*—What is the difference between beaters, conical refiners and disk refiners? Is one type better than the other?

• *Finishing*—How can your finishing room be modernized? How can it be developed into a layout for a continuous flow finishing operation?

These problems and their solutions topped a program of highly theoretical papers at TAPPI's fifteenth Engineering Conference which was held from October 24-27, 1960, in Jacksonville, Fla. Condensed versions of these and other interesting papers presented at the meeting are contained in the following pages.

The conference was well attended with a total registration of about 1,000. The program included some 60 papers on various aspects of engineering in the pulp and paper industry as well as mill tours to the St. Regis and Olin Mathieson plants in Jacksonville.

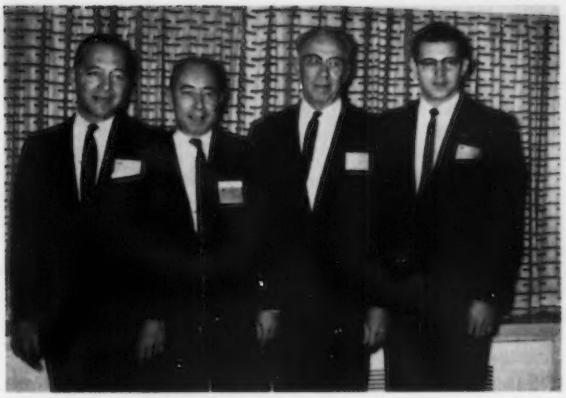


New Device Controls Crown On Paper Machine Calenders

A unique new concept for varying and controlling crown on paper machine calenders was the subject of a paper by Joseph E. Perkins of Black-Clawson. The new concept is simply to obtain correct effective crown for desired operating conditions by physically bending the bottom roll. Such a device is now installed and in operation on a paper machine (See PAPER TRADE JOURNAL's story on the new No. 3 board machine at Marathon Southern, Oct. 17, 1960).

The new paper machine calender installation consists of two eight-roll, open side stacks with dryers between. Each stack has a 37-inch diameter solid bottom roll and seven 17-inch intermediate rolls with three-inch bore. All rolls are 226 inches face. No air loading is used on either stack. The first stack is a wet stack; the second, or dry stack, is equipped with the bottom roll bending device. It is called by Black-Clawson the Accra Nip Calender.

The bottom roll journals of this calender are extended beyond the main roll bearings on the tending and drive sides. A load bearing is mounted on each journal three feet outside each main roll bearing. These bearing are connected to floor mounted hydraulic cylinders. The hydraulic cylinders are individually controlled and used to load the journals up or down, thereby changing the amount of crown across the top of the bottom roll. Pushing up on the journals will decrease the crown. Pulling down on the journals will increase the crown.



INDUSTRIAL ENGINEERING B. C. Kendall, Crown Z.; H. A. Stoess, Fuller; S. Sundahl, Union Bag-Camp, R. G. Carter, C-Z.

STEAM AND POWER H. R. Emery, St. Regis; R. A. Dando, St. Regis; L. Limon, Graver; H. R. Arnold, Continental Can.

Self-aligning spherical roller bearings are used on all calender rolls. They are specially adaptable to bottom roll bending, as they allow the roll journals to flex freely without binding. Special attention was given to sizing the bottom roll to withstand the additional bending loads imposed by the load cylinders. A crown of .026 inch was selected for the bottom roll, representing a load condition halfway between the minimum crown (one 17 inch roll down) and the maximum crown (seven 17 inch rolls down). This reduced the cylinder loading to one half the amount, which would have been required if the crown was changed by the load cylinders over the full range of calender loading from minimum to maximum.

The crown of .026 inch in the bottom roll will give a uniform nip with four 17 inch rolls down. External loading on the bottom roll is not required for the condition. Rolls can be added or removed and the crown changed by varying the pressure and direction of loading of the hydraulic cylinders while the calender is stopped or running.

A flexible coupling floating shaft arrangement is used on the indrive to the bottom roll, which compensates for the misalignment caused by bending the bottom roll. The dry stack has been designed for operation with any number of intermediate rolls from one through seven in contact with the bottom roll. This was done to enable the operator to select the number of nips best suited for the paper being made. Controls are mounted on a console beside the calender.

Bearing Compensators

Bending the bottom roll to change the crown to produce a uniform nip is largely dependent on maintaining a uniform nip between the intermediate rolls. The intermediate rolls being rather small in diameter, tend to conform to the crown of the roll beneath.

The bearing compensator is an air diaphragm located outside each intermediate roll bearing housing, and mounted on two vertical bars connected to the top calender beam. These compensators are used to counterbalance all weight beyond the roll face; namely, the weight of the bearings, housings, doctors, etc., allowing each intermediate roll to transfer its weight uniformly to the roll beneath, thus eliminating the problem of edge or center loading.

All seven intermediate rolls are ground straight. As the nip at the bottom roll is to be maintained uniform, all nips between the intermediate rolls will be uniform. The nip pressure at the bottom roll on the dry stack with 7 rolls down is 420 P.L.I. with compensators, and 588 P.L.I. without. The compensators are adjusted prior to start-up and these settings are not changed when operating. Their purpose is to conterbalance and not to load the intermediate roll journals.

Advantages cited by Mr. Perkins for the Accra-Nip Calender were:

1. One bottom roll crown.
2. No regrinding of crown when changing the number of nips or the loading.
3. Crown corrections made at console while calender is operating.
4. All corrections made at one place, the bottom nip.
5. No loading or unloading adjustments for intermediate rolls.

He went on to say that producing a uniform sheet of paper on a modern paper machine with all of its refinements and improvements is still largely dependent on the use of the proper calender roll crown. A calender should not be operated to correct a poor sheet; but, by the same token, a good sheet should not have to be calendered on a stack with the wrong crown. The bottom roll bending device now allows the operator to easily adjust the crown to suit the desired operating condition.

Actual operating data was not available at the time this paper was written; however, nip impressions on embossed aluminum foil, made prior to start-up, definitely indicated that the bottom roll bending will prove successful.

Comparing Paper Mill Refining Equipment

A current trend in the paper mills toward the use of disk refiners of both the two and four disk type is justified by theoretical considerations and practical results obtained in the mills, was the conclusion reached by David R. Dalzell, Jr., of the E. D. Jones Corp. In his discussion he presented differences, both mechanical and functional, between various types of refining or beating equipment which are in use today. Included were beaters, conical refiners and disk refiners.

Beaters

The beater of today as a refining tool is a precision instrument for developing fiber strength characteristics. This is due to the accuracy of the relationship between moving and stationary refining elements. The roll is heavy, possessing high inertia, thus minimizing any effect of fluctuations in the slurry which it is treating. The refining tackle wears evenly and straight without developing the waviness typical of conical refining equipment—this allowing the refining

power to be distributed evenly across the face of the bars and thus produces a pulp which has been uniformly treated.

The uniformity of refining pressure contributes to long filling life—there are instances where roll fillings have lasted up to 20 years and replacement bedplates installed once every five years

Conical & Disk Refiners

In a conical refiner the relationship between points on the rotating and stationary bars does not remain constant during the life of a refiner filling. The axial movement of the conical plug during filling wear causes uneveness to occur along the refining surface, which causes the refining power to be unevenly distributed.

A disk refiner has a relationship between rotating and stationary elements which is quite similar to that of a beater in that the surfaces mate face on. This contributes to long disk life and uniform treatment of the fibers. At close refining clearances parallelism is maintained by the equal distribution of contact presure and the general rigidity of shaft and bearing supports. Because of the plane refining area of a disk refiner the overall size of the machine is somewhat less than a conical unit and required less floor space for installation.

Except for nonuniformity of filling wear in a conical refiner, it has the same range of application as a disk unit and will develop fibers in about the same way. Since the contact area of a disk refiner compared to total available area is greater than for conical units (20 per cent versus 60 per cent) the disk unit operates at a higher efficiency.

Although the pumping and circulating power in a conical refiner is greater than for a disk machine it is distributed through a larger volume; this volume determines the retention time of stock within the unit. The pumping and circulating power in a disk refiner is restricted to a smaller volume but the unit turbulence is greater, caused in part by larger velocity gradient across disk faces.

Conclusion

Mr. Dalzell's concluding points were that:

- The beater is considered to be a highly accurate refiner for treatment of fibers for low production, high energy input paper grades. It is highly flexible due to batch operation allowing variations in the beating cycle not easily obtained with continuously operating refiners. Due to its ability to handle high consistency stock and to operate at lower peripheral speeds, beater efficiency is higher than for either disk or conical refiners.
- Conical refiners, while relatively inefficient, are capable of the same type of fiber development as a disk refiner. While there is a high degree of user preference for conical machines, it has been indicated that efficiency and filling wear are relatively poor.
- Disk refiners of both the two and four-disk type exhibit advantages over the conical unit in that efficiency and filling life tend to be high and they usually require less floor space per connected horsepower.

Recommendations for a Modern Finishing Room

"To make real progress in the finishing room we must have an overall dynamic improvement plan in which each addition of equipment contributes to our goal," said Richard G. Carter of Crown Zellerbach in his paper on modern finishing rooms. He developed two types of layout to illustrate his concepts: a continuous flow finishing operation with existing equipment, and a future finishing room to be developed as a future goal.

Examples used in his paper were for sheeting coated printing papers, which were said to be about as critical as any sheeted stock in quality and dimensional tolerances. Mr. Carter suggested that to analyze the finishing operation three questions need to be asked.

1. Does each operation add value to the paper or does it merely move the paper from place to place?
2. Are we getting the most value from our inspection methods?
3. Do we have an overall improvement plan, so that each change can be evaluated on the basis of its contribution to our goals?

Some new developments in sheet finishing equipment and their advantages were then noted. In the cutter operation dual backstands on a turntable or on two cars on L shaped tracks allow loading one backstand while the other is running. The continuous layboy allows the cutter to continue running at production speed while sheets are removed.

Handling time in the trimmer operation is reduced by backloading behind the knife, automatically loading the trimmer and removing trimmed sheets at the same time. In skid stacking there are several fine stackers to choose from, each with its own advantages:

Two relatively new carton sealing machines are now on the market, each with different type sealing. If the telescoping carton can be glued, a smaller, less expensive machine can be used. The carton is hand loaded, glue is applied by hand to the flaps, and the top section is placed over the bottom. The filled carton is shoved into the sealer. A sealing blanket lowers over the carton, and vacuum removes excess air and seals the carton. This machine will handle two cartons per minute of various sizes simultaneously without readjustment.

Continuous Flow

Mr. Carter then developed a continuous-flow sheet finishing operation using equipment that is now available from several manufacturers. The objectives were to minimize manual material handling, which reduces labor requirements; to pace production through the department, which eliminates delays; to reduce waste; and to maintain quality and safety standards.

First, for a continuous system eliminate long delays at any point. At the cutter, these delays can be minimized by use of dual backstands and a continuous layboy delivery. Dual backstands will reduce time for changing roll sets to about 10 minutes. A continuous layboy would eliminate all time now spent in removing full skids. The only other down time would be for size changes and maintenance.

The cutter can discharge stacks of paper from four to seven inches high without stopping, and the trimmers can be automatically backloaded. If these two units are connected by conveyor, the manhandling of paper between the two operations can be eliminated. As sheets are conveyed out of the layboy, they are pressed to remove air entrapped between the sheets. This makes conveying stacks more stable on the air table. Air tables with overhead flight conveyors transfer the lifts to the trimmers. Two conveyors to each trimmer are used to allow the cutter and trimmers to operate completely independent of each other within the storage capacity of the conveyors. Inspection air tables can be provided for each conveyor to allow occasional inspection between operations.

Two trimmers are used to allow better utilization of the cutter and

the capacity of the packaging equipment. After trimming, the sheets are either skid packed or cartoned. In this layout a mechanical stacker, a spear, or straddle stacker and a carton taping system are required. They are layed out so that production can be diverted to any line from the trimmers without delay and without moving equipment in or out when used. Therefore, a common distribution air table between the two trimmers and three packaging lines allows a minimum of handling and change-over time. With this system a three or four man packaging crew would switch to different packaging lines as the schedule indicates.

The main stacker would be used for single or double tiered skids which comprise about 80 per cent of skid production. To facilitate production on the skid packing line, a skid finishing conveyor system can be incorporated. Full skids would travel out of the stacker onto the conveyor and an empty skid would be conveyed onto the lift, ready for alignment by the operator. One man operates the stacker and two men wrap, strap, label, stencil, and weigh the loaded skids. The scales are on one section of the conveyor. An overhead hoist is used to facilitate strapping by supporting the strap and strapping tool. For greater production a fourth man can be used.

The spear or straddle stacker will be operated by two men to stack four tier skids which comprise the remaining 20 per cent of skid production. A stationary backboard is used to align the sheets. The skid will lower on a hydraulic lift as sheets are stacked at a uniform elevation. Full skids are transported to the skid finishing conveyor system where two men wrap the skid.

Other Developments

Telescoping corrugated cartons are loaded by two men. Paper is slid from a cantilevered air table into a flat carton bottom, which is sitting on a table extending under the cantilevered section. The sheets are aligned with the carton sides, and to load, both paper and carton bottom are pulled toward the taping machine. The table ahead of the taping machine has a built-in hydraulic lift to allow the carton to be loaded in two steps by the same process. The bottom is left unstitched and the sides are folded up as the stitched top is placed over the carton.

A filled carton is shoved into the infeed conveyor of the peripheral taping machine for automatic taping.

From the machine's conveyor discharge one man palletizes, stencils, and labels the cartons. A hydraulic lift maintains a uniform elevation for stacking cartons, and a shuttle table with roller top allows positioning the carton on the lift without lifting. A filled pallet is rolled off the lift onto a conveyor section for transfer to a finished storage area. In this way production is not delayed while a truck unloads the lift.

Future Improvement

Some of the items for future improvements that should be considered by engineers, suppliers and converters were next discussed.

1. Try to make a cutter accurate enough to allow the elimination of secondary trimming, except for splitting sheets into smaller ones. For many grades, this is already accomplished, but for printing grades, trimming is generally required to assure accurate dimensions and squareness for color register. This would mean labor and equipment reduction in rehandling and trimming.

2. Telescoping cartons with pressure sensitive glue applied by the manufacturer would eliminate the need for expensive closing equipment, space, and manpower. With the acceptance of glue closure replacing peripheral taping by customers, this method would be feasible.

3. The use of disposable pallets in place of expensive skids would save customers thousands of dollars annually. Most finishing rooms can handle pallets as easily as skids, but the small printers using platform trucks will not allow complete change-over to pallets.

4. Standardizing sheet sizes would result in longer production runs, with the attendant benefits of less downtime, waste and delays, and a reduction in cost.

For his finishing room of the future, comparable to the previous layout, Mr. Carter said that about six men per shift plus supply men and supervision would be required for its operation.

Alkaline Digester Corrosion Accelerating

This paper covered reports from 22 mills on alkaline digester corrosion. The paper was prepared by Jacob B. Morrison, Crucible Steel Co.; H. M. Canavan, Mutual Boiler and Machinery Insurance Co.; and Zane S. Blanchard, Portland Overlay Welding Div. of Chicago Bridge & Iron Co. Reports from the mills covered 172 carbon steel digesters and 34 stainless steel or Inconel lined or clad digesters.

Conclusions reached based on the data submitted were as follows:

1. Average current corrosion rate for carbon steel digesters, based on the weighted average, has increased from 28.2 to 36.2 mils per year.

2. The average current corrosion rate in the critical area of carbon steel digesters, based on the weighted average, has increased from 69.1 to 81.5 mils per year.

3. The critical area appears to remain in the upper shell, while the percentage of mills reporting the critical area in the middle shell has increased from 28.4 to 36.3 per cent.

4. It appears liquor charging is still leading the list of causes for corrosion in the critical area. However, a large number of mills are still reporting that they do not know the cause of the corrosion in the critical area. It appears that if this percentage could be further decreased we would have a better balance as to the cause of the corrosion in the questionable area.

5. The average corrosion rate for all carbon steel digesters, based on the weighted average, is 36.2 mils as compared with 3.3 mils for the Inconel lined and clad digesters and 6.1 mils for stainless. The average corrosion rate for the critical area for all carbon steel digesters, based on the weighted average, is 81.5 mils as compared with 7.3 mils for Inconel lined and clad digesters and 6.7 mils for stainless.

6. Overlaying of carbon steel digesters with stainless steel has generally proved to be a valuable tool for increasing the service life. Unfortunately, there have been some failures after limited service.

There is a lot of activity among technical experts to try to determine why failures occurred in some cases while in similar cases the overlay was performing satisfactorily. At this date everything points its finger towards the method of application. This involves the rate of travel, the material deposited per square foot and the richness of the alloy as deposited or the percentage of dilution. Once a standard specification has been established one would expect that most of the serious difficulties would be eliminated. However, overlay is not a cure-all and will require some maintenance.

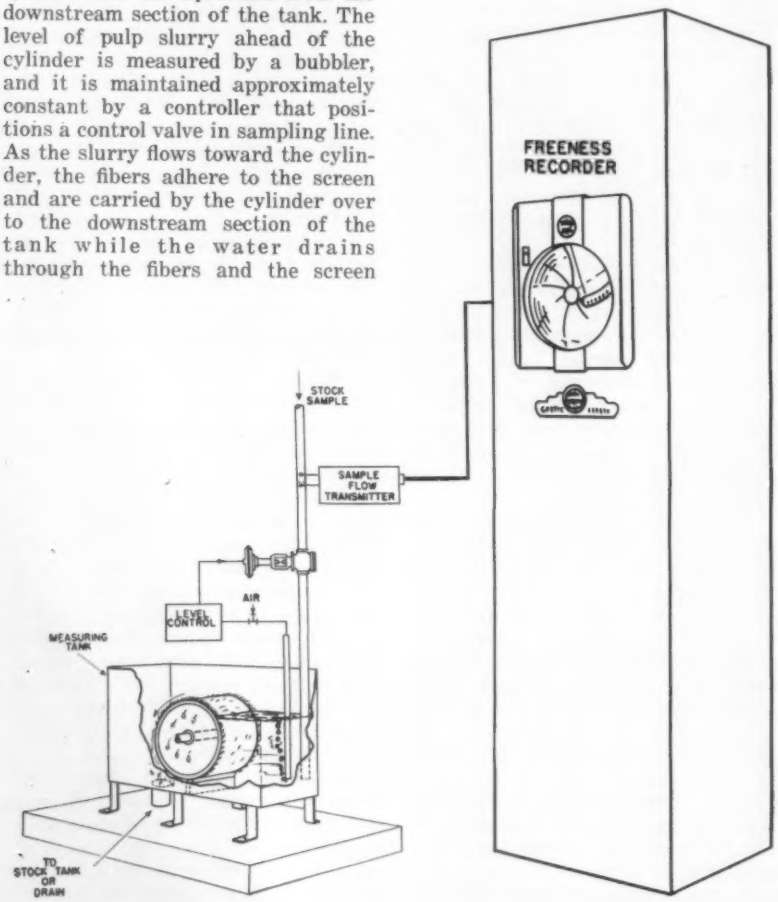
Information received shows that 61.2 per cent of the mills were only having minor problems with cracking in the overlay that they installed, while 56 per cent reported the overlay was performing satisfactorily.

New Instrument Measures and Controls Refined Stock Freeness Continuously

The importance of the development of a continuous freeness recording controller was attested to by a large and interested audience which heard Lowell Zabel deliver a paper by George A. Chedomir of Kimberly-Clark's Research and Development Division. Developed by K-C and evaluated in cooperation with Bailey Meter Co. the instrument which was installed in the mill production line consists of a freeness detector tied to several standard instruments. It helps to determine and maintain the degree of stock refining nearly constant at a desired freeness level.

Operating Principle

Its operation is such that a continuous small flow of thin pulp slurry is pumped through a 1½ inch line into a rectangular tank ahead of a slowly rotating cylinder of fourdrinier wire. Rubber strips around the edges and at the bottom of the cylinder seal the upstream from the downstream section of the tank. The level of pulp slurry ahead of the cylinder is measured by a bubbler, and it is maintained approximately constant by a controller that positions a control valve in sampling line. As the slurry flows toward the cylinder, the fibers adhere to the screen and are carried by the cylinder over to the downstream section of the tank while the water drains through the fibers and the screen washing the fibers off the screen into the downstream section. From here the restored slurry is returned into the process. It has been found experimentally that the rate of water drainage through the fibers carried by the cylinder has a definite relation to the freeness of the pulp. Any change of freeness tends to change the level ahead of the cylinder. The bubbler detects this change immediately and through a controller positions a control valve in the sampling line to increase or decrease the flow to the tank. These flow changes are measured by a flow orifice in the sampling line. The flow signal is converted into a 3 to 15 p. s. i. air signal by a differential pressure transmitter and the signal is recorded on a pressure recorder in terms of freeness. It is also fed to a controller and modified to control a pulp refiner at any desired freeness level.



To calibrate the instrument for use in the mill, calibration curves were obtained for the various types of pulp or their mixture. It was necessary to select a standard condition consisting of nearly constant consistency and temperature of the pulp sample and a constant cylinder speed.

Used on Various Pulps

The effect of variables other than freeness has been minimized while maintaining a high sensitivity to freeness variations.

The recorder has been used on various pulp types and was operated under various conditions in the mill. It has been in continuous operation on a semichemical pulp line for about 1½-years. The sample for the freeness detector is obtained immediately downstream of the refiner from a pulp flow line of well-controlled consistency at 3 per cent moisture free. A simple flow ratio method consisting of a positive displacement pump on the pulp line and a flow regulator on the dilution water line is used to supply a continuous sample of about 12 g.p.m. at 0.80 per cent consistency for the freeness detector. Tests showed that the consistency variations remained within 0.75 to 0.80 per cent moisture-free limits, which did not introduce a serious error in the freeness readings. The pulp temperature in the detector varied from 84 to 86°F. The small effect from these temperature variations did not have to be compensated in the freeness readings. It should be mentioned that both consistency and temperature were well balanced at their midvalues for over 75 per cent of the operating time. The system is fully automatic and requires very little maintenance, usually not other than flushing the cylinder screen with water once a week. In case of excessive dirt coming from lubricants or tar in the pulp slurry, more frequent flushing of the screen with hot water or steam would be necessary.

Start-Up and Adjustment

The system is set in operation by starting the pump and cylinder drive motor. Seconds later the pen records the freeness when the pulp sample has reached the preset level ahead of the cylinder. The degree of refining is determined by moving the control set pointer while observing the recorder pen approach the desired freeness level of the chart.

Pulp types that this freeness recorder controller has been used on include kraft, groundwood, semichemical, and mixtures of groundwood and chemical pulp.

CORROSION E. W. Hopper, Consultant; E. G. Holmberg, Int. Nickel; R. E. Gackenbach, Amer. Cyanamid; J. M. Jopp, Columbia Cellulose; R. A. Davis, Chicago Bridge & Iron.

INSTRUMENTATION J. K. Powell, Bowaters; R. B. Hurm, Beloit; E. J. Trimbey, Trimbey Machines; D. P. Michel, Bauer; E. W. Prince, Champion.

Construction Materials for A Bleached Kraft Pulp Mill

The author of this paper, J. M. Jopp, director of engineering for Columbia Cellulose Co., Ltd., described, or prehaps prescribed, certain materials that have found wide acceptance for specified services in a bleached kraft pulp mill and are considered satisfactory from a corrosion viewpoint.

He gave specifications for building materials for the woodroom, pulping buildings, recausticizing, steam and power, machine room and pulp storage. His specifications for piping materials were guided by such factors as maintenance costs, length of service, installed costs and corrosion resistance. The materials were rated in a table as to first, second or third choices for specified services. Materials considered ranged from cast iron, carbon steel and stainless steel to Transite, glass and glass-fiber reinforced plastic pipe. He also suggested consideration of a number of plastic materials to meet corrosion problems. Valves, agitators, pumps, conveyors and gasket materials were specified for various services in tabular form.

Digester Specifications

In regard to digesters he pointed out that the older kraft mills used carbon steel digester shells exclusively. With the advent of the modern types of recovery boilers, the corrosiveness of the liquor increased and digester shells corroded out faster.

Experience indicates that the corrosion of mild steel "batch" digesters is most severe in areas subjected to spattering of liquor during the filling operation while the temperature of the shell walls is high enough to cause rapid evaporation.

Several means of combating kraft digester corrosion have been tried. The practice of using a stainless steel overlay in carbon steel vessels where the corrosion allowance has been lost is being tried in some mills. He stated that he was very skeptical of this method of repair. His feelings were based on actual experience with small badly corroded areas where the method was tried. In his opinion, dilution of the stainless rod is so great that the effectiveness of the alloy is lost.

Where cleanliness is a predominate factor the use of Inconel-clad sulfate digesters must be considered. It is probable that over a period of 20 years' continuous operation for a bleached kraft mill, this type of digester will be superior and produce pulp of a superior quality at a lower price per ton. There are a number of Inconel-lined kraft digesters in service for periods approaching 10 years and the records of these vessels indicate a probable service life expecancy of 30 years.

Carbon brick-lined mild steel vessels have been tried. In America the experience does not appear to be too favorable and the use of such vessels has been very limited.

Operating experience with continuous digesters has shown that corrosion of the vessel plate is not generally serious. This fact lends credence to the generally accepted hot plate theory as a major cause of batch digester corrosion. In the continuous process the vessel remains at a relatively uniform temperature, hot liquor is fed in continuously and the erosive action of free falling chips is absent. The absence of these factors appears to mitigate corrosion in these vessels and permits the general use of mild carbon steel.

About blow tanks, Mr. Japp said that generally, only the target area requires special material and this is largely an erosion problem. Various types of stainless steel have been used with little if any advantage over mild steel. ASTM grade 5130 has been used in this service with excellent results. Those mills whose wood supply is floated down streams with sandy bottoms have the most severe erosion in the blow tank target area.

Brown Stock Washers

Specifications for brown stock washers were as follows:

Vats: Tile, concrete tiled lined, steel, tile lined or type 304 SS. Concrete vats, tile lined often cracked and require costly repairs. His recommendation was type 304 SS. or tile; preferably tile.

Mold:

Head and shell	Steel
Ribs	304 SS
Winding wire no. 9 gage	304 SS
Face wire—40 mesh	316 SS
Front trunnion	Cast steel
Shaft	Forged steel
Inlet box	Steel
Valve	Cast iron
Bearing	Bronze
Take-off rolls	Steel
Doctor	304 SS
Repulper & shredder	Steel
Press rolls	Cast iron
Splash shields	304 SS

Seal Tanks. Steel or tile. If steel is used allow ⅛-in. corrosion.

Black Liquor Oxidation Tower. Steel—⅛-in. corrosion allowance.

Brown Stock Storage. Steel—⅛-in. corrosion allowance.

Brown Stock Screens. All parts in contact with the stock—type 316 SS.

Centrifugal Dirt Separators. Type 316 SS.

In bleach plant equipment, washer vats could be constructed of hollow tile; concrete, tile lined; steel, tile lined; and stainless steel. Where pointing is necessary, polyester resins should be used for all stages except the caustic. Portland cement and sand is adequate here. He felt that hollow tile vats would generally prove most economical. Specifications for various bleach stages were as follows:

Washers

CHLORINE STAGE. Mold type—317 SS E.L.C. Inlet box type—317 SS E.L.C. Seal tank—steel with single course of tile with polyester resin pointing.

CAUSTIC STAGE. Washer where current flows is used and maximum reuse of wash water is accomplished. Mold type—317 SS E.L.C. Second choice 316 E.L.C. If no ClO_2 in system, C.I. or steel will be satisfactory. Inlet box type—317 SS E.L.C. Seal tank—steel shell, single course tile with polyester resin pointing.

HYPOCHLORITE WASHER. Washer where countercurrent flows is used and maximum reuse of wash water is accomplished. Mold type—317 SS E.L.C. Inlet box type—317 SS E.L.C. Seal tank—steel shell, single course tile with polyester resin pointing.

CHLORINE DIOXIDE STAGE. All type 317 SS E.L.C. as foregoing. The use of one or two stages of ClO_2 with countercurrent flows makes the use of type 317 SS E.L.C. desirable and economical as compared with less costly materials that could be used as a compromise.

Towers

CHLORINATION STAGE; Shell-top, bottom and launder—steel—corrosion allowance nil. Tile lining: Salt glazed, vitrified semistone ware. Single course ¾ in. thick Grout & pointing: Polyester resin acidproof. Alternative: Welded steel shell, rubber lined. If properly installed this type of lining gives exceptional service, though some unexplained failures are recorded.

CAUSTIC STAGE: Shell, top and bottom—mild steel. Tile lining: Salt glazed, vitrified, semistone ware. Single course ¾ in. thick. Grout & pointing: Portland cement—sand.

HYPOCHLORITE STAGE: Shell top and bottom—carbon steel. Tile lining: Salt glazed, vitrified semistone ware. Single course ¾ in. thick. Grout & pointing: Polyester resin acidproof.

CHLORINE DIOXIDE STAGE: Shell, top and bottom—carbon steel — corrosion allowance, nil. Tile lining: Salt glazed, vitrified, semistone ware, single course, membrane-rubberized plastic troweled on the steel shell. Grouting & pointing: Polyester resin cement.

Mr. Japp also gave specification for materials to be used in equipment for ventilation, recaustizing, recovery, electrical system, sewers, insulation, painting, and for precipitators and evaporators.

Fast Rundown on all the Highlights of the Program

The session on electrical engineering included papers on electrical problems involved in utility company-paper mill plant ties, protection of a.c. motors, power requirements of feltless pulp machines, structural board machine power data, and selection of refiner motors. There was a panel discussion on flexibility coupled motor bearing designs, application, installation and maintenance.

There were two sessions on chemical engineering, one on process and another on operations research. Included were papers on: wet-bulb hygrometry for air, water vapor, and sulphur dioxide systems; a new continuous freeness recording controller (see following pages for complete report on this development); the effect of some organic substances on oxygen absorption in bubble aeration. In the operations research phase of the program which was chaired by E. F. Thode of the Institute of Paper Chemistry, a paper was given by R. W. Van Duyne of West Virginia Pulp & Paper in which he attempted to show how linear programming can assist management in three aspects of decision making: operations, planning and standards. Four problem areas which can be described mathematically by linear programming equations were discussed. They were the trim problem, machine loading problem, product distribution and pulpwood procurement.

W. E. Winans of International Business Machines discussed principles and uses of computer simulation. Numerical analysis in research and engineering was the subject of a paper by Dr. Thode and R. W. Nelson of the Institute of Paper Chemistry.

Fluid Machines

There were two sessions on fluid mechanics with C. A. Lee of the Formex Co., chairman of one, and P. Wrist of the Mead Corp., chairman of the other. In these sessions A. E. Scheidegger of Imperial Oil Research, Canada, world famous expert on flow, discussed flow through porous media and was the keynote speaker at the first session. He pointed out the fallacy of the basic concepts of much work using the Kozeny equation.

W. R. Debbler of the University of Michigan gave a report on the completion of work on free surface flow and confirmed previous results as to the cause of table roll disturbance. An important paper by A. C. Spengos of Scott Paper Co. showed the futility of using shake at speeds of over 500 f.p.m. Another significant paper on the compressibility of wet pulp mats was given by H. O. Wilder of the Institute of Paper Chemistry.

Table Roll Drainage

J. Mardon of Oxford Paper Co. gave a short talk introducing a treatise on table roll drainage that he had written in combination with A. B. Truman, now of the College of Technology, Manchester, England; B. I. Howe, Quebec North Shore Paper Co., and C. K. Meadley, Anglo Paper Products. His talk dealt with a new dynamic sheet machine designed by Mr. Mardon and B. Wahlstrom, now of KMW, Sweden.

This machine had been used to characterize different stocks for their drainage properties and the theoretical total drainage on various paper

POWER PLANT TRAINING T. F. Woodward, Scott Paper; M. S. Ginter, Dow; W. S. Tierney, Detroit Edison; J. W. Herrington, Buckeye Cellulose.

FLUID MECHANICS P. Wrist, Mead; C. L. Clark, Clark Vicario; J. Mardon, Oxford; W. R. Debler, U. of Michigan; A. C. Spengos, Scott.

machines compared with that measured by a material balance. Mr. Mardon emphasized the joint nature of the work he was discussing and also praised the experimental skill of M. G. O'Blenes, another of his colleagues who had contributed to some of the experimental work.

Other papers in these sessions dealt with the function of the Flo-Vac rotary suction box, friction loss of paper stock through pipe fittings, resistance of wire screens to flow of water and resistance of woven wool felts to liquid flow.

Air Drying

In the session on drying, C. Allander of A. B. Svenska Flaktfabriken in Sweden gave a paper treating the basic physical processes connected with the evaporation from a sheet being subjected to air impingement on one side while the opposite side is contacting a heated cylinder. He pointed out that it is mainly the heat transfer coefficient at the surface of the sheet that affects the effectiveness of an impingement system whereby the power consumption is the limiting factor. The results were summarized by a formula giving the heat transfer coefficient as a function of the air supply power, the hole diameter and the distance between the perforated plate and the cylinder for a perforation of the plate between 1.5 and 3.5 per cent.

A paper by R. A. Danne of Stanford University and S. T. Han of the Institute of Paper Chemistry was aimed at providing an engineering basis for the evaluation of the impingement method of drying. It was suggested that one of the important practical objectives of an air impingement system is to achieve a high heat transfer rate with a minimum expenditure of air blowing power. An index which is indicative of the heat transfer rate under conditions of constant power expenditure was then defined. It was said to be an important measure of any air impingement dryer system.

The drying session also included a panel discussion on the more practical aspects of the use of high velocity air drying. The panel was composed of representatives from various mills having one or more high velocity air dryers in operation. Moderated by S. G. Holt of Consolidated Water Power & Paper, the panel members were: J. W. Taylor, Consolidated W. P. & P.; J. J. Killian, West Virginia Pulp & Paper; P. H. Murphy, Crane Co.; J. G. Coats, Jr., Bowaters Eng. & Dev.; and W. E. McGough, Olin Mathieson. The panel began by describing briefly the dryer installations. High velocity dryers were used for preliminary drying, leveling moisture across the sheet, drying after coaters and size press and for additional drying capacity.

J. Mardon of Oxford Paper led off in questioning the panel with "What per cent drying is attributable to the dryer drum and what per cent to the impinging air?" Answers were rather inconclusive due to the difficulty of obtaining data on production installations, but Mr. Murphy supplied some information in this regard, saying that his mill had a unit on the second dryer of one of its machines and were able to take before and after samples. He said that entering moisture content was 66 per cent and resulting moisture after the dryer 56-58 per cent. About 40 per cent of the moisture removal was due to impinging air.

Another member of the audience questioned panel members on the occurrence of hood warping at high temperatures. No such difficulty had been encountered even though operating temperatures as high as 620 degrees had been used. Another question was concerned with the effect of air impingement on coating. Answers to this suggested the possibility of some difficulty along these lines, but one mill used a low velocity air dryer followed by a high velocity air dryer, and experienced no difficulty from air dryers after coating.

Other points brought up were on the use of air dryers for leveling moisture across the sheet. At least one mill was highly enthused over this type of application. It was said that with their unit they have been able to correct moisture variations of four per cent and more to one per cent or less. Panel members seemed in agreement that there was no need for moisture correction after coating, saying that if the sheet is fairly level going in, it will be fairly level coming out. A question as to whether moisture leveling by air dryer produced flatter or less baggy sheets drew the reply, "We don't have baggy sheets!" It was pointed out though that leveling of the sheet should minimize bagginess, and that location of the leveling dryer would have an effect on this.

Probably the salient point of the whole discussion was brought out when it was asked what plans the panel members had for future installations of this type of dryer. Each

one said that more installations were in progress or were being planned!

Mechanical Engineering

One of the most important papers given at the conference dealt with machine calender roll crowns and pressure distribution. Prepared by Jerome W. Riese of Kimberly-Clark, a theory was presented which offers the first possibility for calculating nip pressures under non-uniform conditions. The theory permits an evaluation of the criticality of roll crowning, and shows promise of extension to several other applications.

Previous calculations on this subject have been of two types:

1. Calculate the correct crown to give uniform pressures across the deckle, under given end conditions.

2. Calculate the correct crown to give a known pressure distribution across the deckle, still under known end loading.

Both of these methods had the common failing that they could not calculate the pressure distribution when the conditions were not exactly as prescribed. All roll crowns are limited in accuracy by the grinding mechanism. To know how critical the crowns are, it is desirable to calculate how the pressure varies when the crowns and end lifts are not as prescribed. Also, when non-uniform pressures are desired, it is necessary to take into account the varying reaction of the nip.

Mr. Riese' paper presented a more general theory of roll crowns and pressure distributions. For uniform pressures it reduces to the previous theory. But, by establishing a "distributed spring constant" in the nip, and setting up the appropriate differential equations, it also permits calculation of the pressure distribution under known end lifts and crowns.

The mechanical engineering session also included papers on the Accra-Nip calender, calender roll crowns and pressure distributions, mechanical design and installation requirements of trailing blade coaters, vacuum requirements for paper machines, and a comparison of paper mill refining equipment.

Material Handling

In a session on industrial engineering and materials handling, chaired by B. C. Kendall of Crown Zellerbach, a paper was given by H. A. Stoess, Jr., of the Fuller Co., dealing with some of the problems in storage and handling of clay. He also discussed design and related development from bag to slurry storage. R. G. Carter of Crown Zellerbach gave some recommendations for a modern finishing room.

One of the most interesting papers was prepared by S. Sundahl and C. H. Eitel. Delivered by Mr. Sundahl, the paper dealt with that company's recently installation of a conveying system for eifficient and economical handling of approximately 2400 tons per day of paper and board rolls from seven paper machines to any one of 13 delivery stations. The conveying system consists of manually controlled in-floor and automatic (or manual) controlled monorail carriers. The system has been designed to deliver rolls, without auxiliary equipment from the operating level to the basement level in the paper mill, and from the operating level in the paper mill to the operating level in the bag factory.

Maintenance and Corrosion

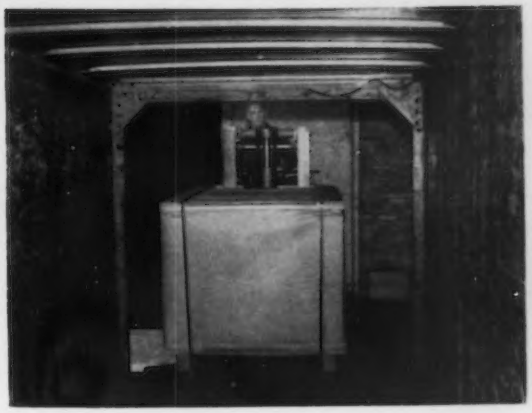
A session on maintenance covered reduction of down time on recovery units, physical properties of rubber covered rolls as related to proper maintenance, electrical system maintenance and a panel discussion of pulp and paper maintenance. The session on radiant drying was concerned with its characteristics, generation and application. The construction engineering session including papers on outfall lines into large bodies of water, foundations and construction problems. The engineering economics session covered budget control of large scale controls, evaluation of a moisture control and a method for economic analysis of the paper-making process. Sanitary engineering covered industrial water conservation and re-use, water treatment for color removal, and methods of waste water recovery. Steam and power discussions centered on water treatment for high make-up boilers, supervision of operation of recovery boilers, and training of power plant personnel.

Two sessions on corrosion included papers on the use of ductile iron, plastics and plastic film, construction materials for a bleached kraft mill, fabricating practices, alkaline digester corrosion, and stainless steel weld metal overlay linings for digesters. Process instrumentation included papers covering principles of on-the-machine moisture measuring systems, control and measurements from 1906 to 1960, outlook of the control engineer, and organization of the instrument department.

DRYING PANEL Seated: J. W. Taylor, Cons. W.P.&P., J. J. Killian, West Va.; S. G. Holt, Cons. W.P.&P. Standing: J. G. Coats, Bowaters; P. H. Murphy, Crane Co.; W. E. McGough, Olin Mathieson.

DIGESTER OVERLAY Seated: E. W. Hopper, Consultant; D. Innes, I. P.; F. D. Whitehead, West Va. Standing: M. E. Cyr, Fraser; D. Kingsburg, Portland Overlay; G. E. Linnert, Armco Steel; C. Jelm.

Operator pulls pallet load into the main aisle. It will be taken away by an electric truck.



Low mast height allows narrow aisle truck to spot its load inside highway trailer.

Narrow Aisle Trucks Solve Paper Handling and Storage Problems

Henry J. Roehner,
Finishing Superintendent,
Finch, Pruyn & Co., Inc.

Two of the most critical problems that arise when paper production is increased are found in the materials handling and storage operations. At Finch, Pruyn & Co., paper manufacturer of Glens Falls, N. Y., business expansion and increased sales required the company to carry bigger stocks of finished paper in many grades, sizes, colors and finishes. The greater sales volume also created problems in providing prompt shipments to customers.

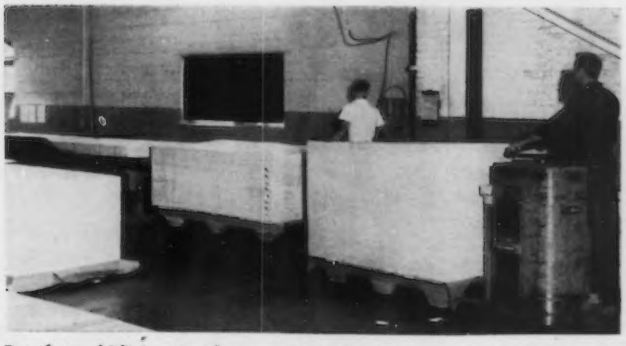
*See Paper Trade Journal's April 27, 1959, issue for detailed description of Finch Pruyn's finishing operations.

New Material Handling System

A new material handling and storage system has reduced costs and brought other tangible benefits to Finch Pruyn. Boxed paper is now stored and shipped on expendable pallets. Bulk orders of cut paper are put on wood skids. Boxed and bulk sheets, made up in unit loads, are handled by Raymond narrow aisle electric "Reach Fork" tiering trucks.

In the storage area usable space has been more than doubled. Aisle widths have been reduced 25 per cent and skids and pallets are stacked

Skid loads of paper weighing up to 4000 pounds are tiered three high.



Paper on skids is moved to a press cutter by a low lift platform truck.

ceiling high. In bulk storage, goods can be stored right back to the wall so that one single narrow aisle can service a large area.

At Finch, Pruyn all sheet stock is made up into unit loads as soon as it comes from the cutting machines. Twelve cartons of boxed paper are placed on special expendable wood pallets as they come off the packaging line. These pallets are moved out into the aisle with a hand pallet truck from which point they are handled by the electric trucks.

Skids of Cut Paper

Skids of cut paper are made up in 2000 pound to 4000 pound loads as they come from the press cutter. The paper is then wrapped, labeled and a protective layer of wood is placed on top. Steel strapping secures the load for shipment. Most paper on skids moves directly to the shipping room and is immediately moved into freight cars or over-the-road trailers. A dual drive 4000 pound capacity "Reach Fork" truck provides traction even on wet slippery docks to put these loads directly into the car or truck. Boxed paper for later delivery is taken by elevator to a storage area where it is tiered two high by the electric truck.

Before the new unit load system and fork lift handling was worked out, multiple handling resulted in high labor charges. Cartons of paper were manually handled eight or nine times between the time they were packed and shipped out. Normal production at that time ranged between 75 and 100 boxes per day. Now more than 500 boxes are packed and handled with the same labor force.

Labor Savings

Direct labor savings can be more accurately figured on carloadings. Under the manual handling system it took three men a full day to load a single car. Now with all material put up in unit loads one man can load a box car on one hour. Currently at least two cars and six trailers are loaded each day and since the current wage rate is about $2.10, the direct labor savings can be quickly recognized.

Many indirect benefits of the new system should not be overlooked. Finch, Pruyn now offers one day shipment from stock, thanks to the new system which allows them to maintain a well-rounded inventory. Before, most paper was made to customers' orders. Inventory control through the unit load system is easy to maintain. Damages from careless handling and storage have been greatly reduced, accidents are infrequent because the hazards of manual handling have been eliminated. Jobs have been made easier, morale is better. Housekeeping is neat and orderly. Trucks and trailers are loaded and dispatched without delay.

Truck Maintenance

The narrow aisle tiering trucks are on duty two eight-hour shifts each day and the single low lift platform truck which moves skids from production to packaging operations works 24 hours a day. Spare batteries are charged and made ready as needed for the heavy work load. Maintenance is done in our own plant by a mechanic who has attended Raymond's factory service school.

The many benefits of this efficient handling system are enjoyed by the company in a more profitable operation; by the workers in safer and easier working conditions, and by the customers in better service.

IDEAS FROM THESE OUTSTANDING BOOKS WILL HELP YOU

MODERN PULP AND PAPER MAKING

Revised and enlarged 3rd Edition, edited by John B. Calkin, Consultant to the Pulp, Paper and Chemical Process Industries.

Completely describes and discusses all principles involved in modern pulp and paper making. 558 pages. $10.00

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J. N. Stephenson, editor-in-chief

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☐ Volume III	$12.00
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*Idea submitted by O. Groskaufmanis, Abitibi Power and Paper Co., Ltd., Iroquois Falls, Ontario, Canada

Photo by: H. Armstrong Roberts

"Reminds me of HAMILTON Felts . . . they stay open longer, too!"

"While it's important that a felt lasts a long time, it's also important that it doesn't get filled up with white water particles. And *Hamilton* Felts do stay open longer." writes O. Groskaufmanis, control engineer.

All Hamilton Felts are woven with plenty of open space between threads. The water flows through them almost as rapidly as it can be supplied.

But the fibers don't get through; they are caught by the long threads of the nap and removed by the metal shoes or washed off by jets of clean water.

If fast, copious water removal, economical fiber salvage, and long lasting, usable felts are what you want, why not start using us as one source of your felt supply? Just ask your Hamilton Felts Service Salesman . . . or write us, today!

*WIN . . . *A NEW Shakespeare Spincast Fishing Outfit!*

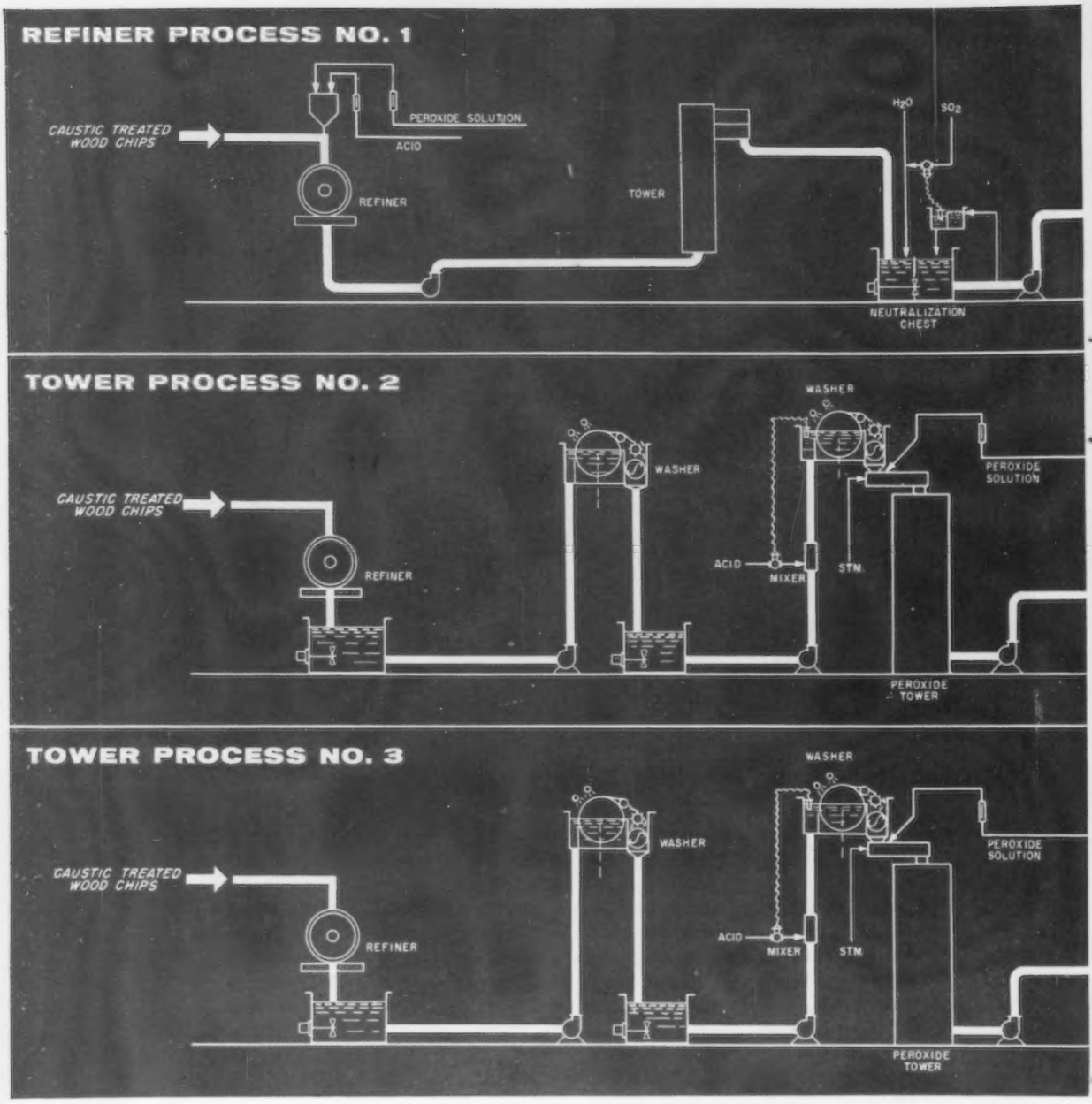
"What famous place reminds you of Hamilton Felts? Tell us why in a few words; sign your name and address and name of company. Each month, the idea from a papermaker that we use wins a new 1960 model Shakespeare Spincast Rod and Reel—FREE! When identical winning ideas are submitted by 2 or more papermakers, the one with the earliest postmark will be considered the winner. *Every U.S. papermaker entrant* receives a famous Rex Spoon fishing lure—FREE. Send me your suggestion—today. Ham Feltz, 612 First National Bank Bldg., Cincinnati 2, Ohio."

YOU CAN'T BEAT

Hamilton

FELTS

SHULER & BENNINGHOFEN, HAMILTON, OHIO



Which process is best for

experience can help you make the right

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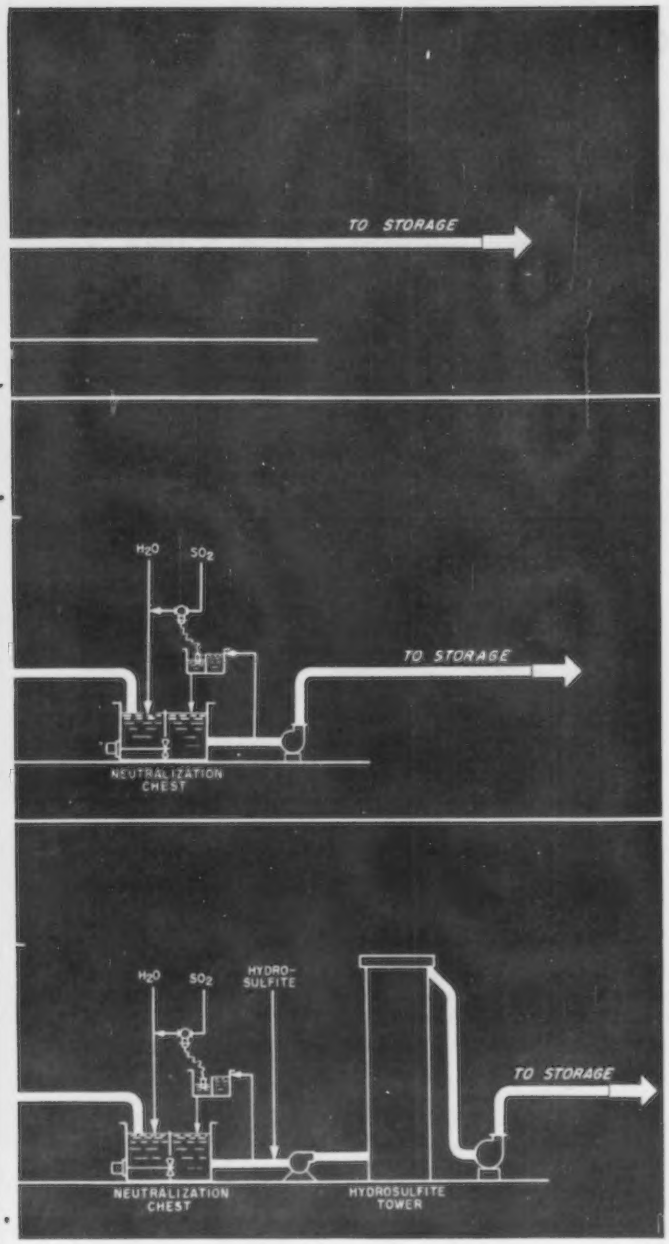
CALL ONE OF THESE MEN... LET HIM WORK WITH YOU IN MAKING THIS IMPORTANT DECISION:



Du Pont experience has helped many mills make the right choice between tower or refiner bleaching for cold caustic pulp based on brightness requirements. For example:

60 brightness. In process No. 1 at left, caustic-treated wood chips enter refiner and are bleached with "Albone" hydrogen peroxide and acid*. The use of acid controls the alkalinity of the bleaching reaction and assures maximum response from the hydrogen peroxide. Sulfur dioxide (SO_2) then neutralizes the bleached pulp and stabilizes the brightness obtained in the refiner. **Du Pont Patent Pending.*

65 to 75 brightness. In process No. 2 at left, pulp is refined, washed to remove caustic solubles, acidified with sulfuric acid to remove acid solubles, washed, and bleached in a conventional peroxide tower to desired brightness in the 65 to 75 range.

70 to 80 brightness. In process No. 3 at left, pulp goes through the same steps as in process No. 2. Then pulp is neutralized, and bleaching is completed in a hydrosulfite tower for maximum brightness in the 70 to 80 range.

Electrochemicals Department, Peroxygen Products Division
Wilmington 98, Delaware

ALBONE® hydrogen peroxide

DU PONT REG. U.S. PAT. OFF.

SOLOZONE® sodium peroxide

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

bleaching cold caustic pulp? Du Pont choice between tower or refiner bleaching investment and chemical costs.

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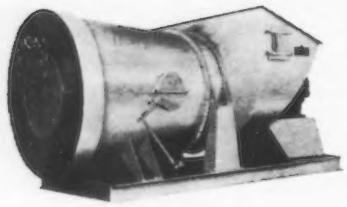
Or call: N. J. Stalter, Wilmington, Delaware—PRospect 4-4698



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Time was when an airplane's propeller was a pretty inefficient device. Along came the variable pitch prop, which vastly improved performance. Now SF engineers have adapted the variable pitch propeller to industrial uses. The result? New economies in your plant operation.

The impeller blades of SF's Axial Flow Fan can be adjusted while the fan is running at a constant rate, thus enabling the air or gas flow to be continuously varied. This makes for unprecedented regulation economy and high efficiency in your operation.

The direct-driven SF Axial Flow Fan operates at a higher speed than centrifugal fans, therefore higher speed motors can be used. No expensive gearing between motor and fan is required, a feature that decreases the initial cost of the fan installation. The impeller blades are easily replaced without costly dismantling of the whole fan—thus less cost for maintenance.

Forty-eight standard sizes are available, for flows ranging from 60,000 to more than 600,000 cfm. SF has full details for the asking.

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Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd.	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡152.00/160.00				§167.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		140.00/ —		
Kraft, Semi-bleached.	140.00/145.00				
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn.		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED OCTOBER 25

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.75	n.a.	n.a.	8.25/8.00
3	7.75/6.75	$7.50/7.25	$7.50/7.00	7.75/7.00
4	6.75/6.00	6.50/6.25	6.50/6.25	6.50/ —
5	6.00/5.50	6.00/5.75	6.00/5.50	6.00/5.75
6	5.50/4.50	5.25/5.00	5.25/5.00	5.00/4.00
7	4.50/4.00	4.50/4.00	4.75/4.00	n.a.

WASTE PAPER MARKET

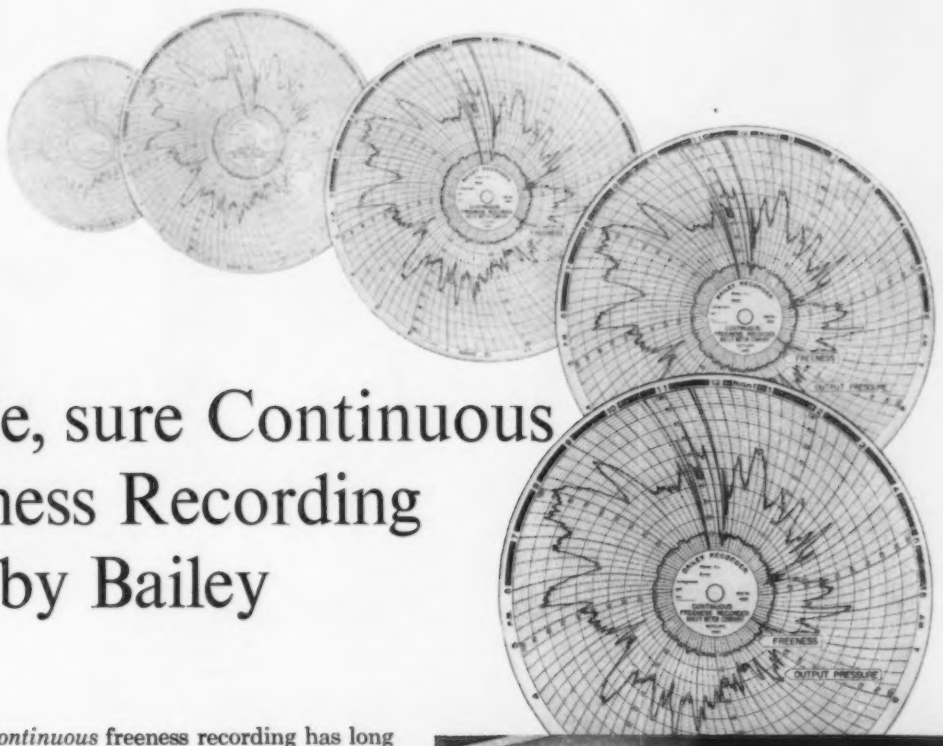
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Oct. 31	Oct. 31	Nov.	Oct.
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	13.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	18.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ —	13.00/ —
Old Corrugated Containers	19.00/ 20.00	17.50/ 18.00	20.00/ —	20.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	27.50/ 30.00	32.50/ —	35.00/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	60.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 65.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 70.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	23.50/ 27.50	12.00/ —	32.50/ 35.00
White Newsblanks	42.50/ 45.00	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	110.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	42.50/ 45.00	42.50/ 45.00	45.00/ —	40.00/ —
Manila Tab. Cards	62.50/ 65.00	62.50/ 65.00	60.00/ —	65.00/ —
No. 1 Col. Ledger	32.50/ 35.00	32.50/ 37.50	40.00/ —	27.00/ —
White Ledger	45.09/ 50.00	47.50/ 52.50	50.00/ —	35.00/ —
Mixed Book & Mag.†	— / —	— / —	12.50/ —	— / —
No. 1 Books‡	16.50/ 19.00	22.00/ 24.00	27.50/ —	10.00/ 12.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

Now...proved in continuous operation...



simple, sure Continuous Freeness Recording by Bailey

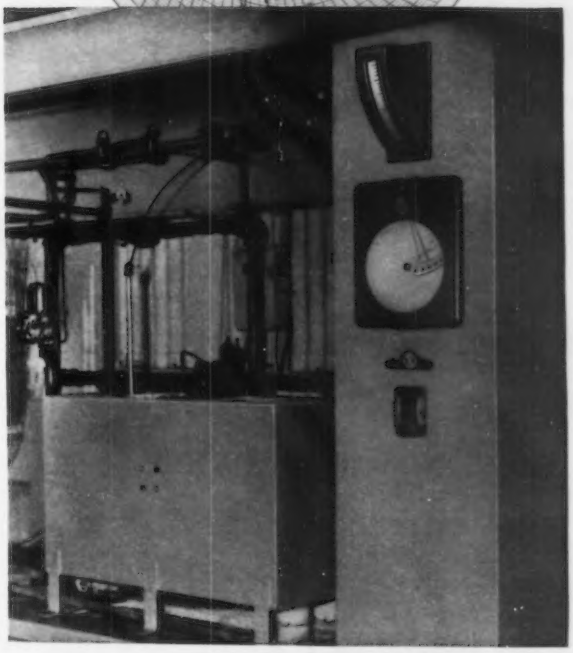
Dependable, *continuous* freeness recording has long been an objective of the pulp and paper industry.

Today it is a fact.

The Bailey Continuous Freeness Recorder, based on simple principles and utilizing equipment well-known by the pulp and paper industry, now provides a means for dependable, continuous measurement of freeness, proved in successful, continuing service for more than a year.

Its operation enables more accurate control of pulp stock characteristics...automatic control of refiners and jordans for sustained product quality. Performance is trouble-free . . . maintenance, negligible. Your Bailey Engineer will be glad to give you details. Call your nearest Bailey District Office, or write.

P151-1



Bailey Continuous Freeness Recorder in operation at a Southern newsprint plant.

PULP AND PAPER DIVISION

BAILEY METER COMPANY

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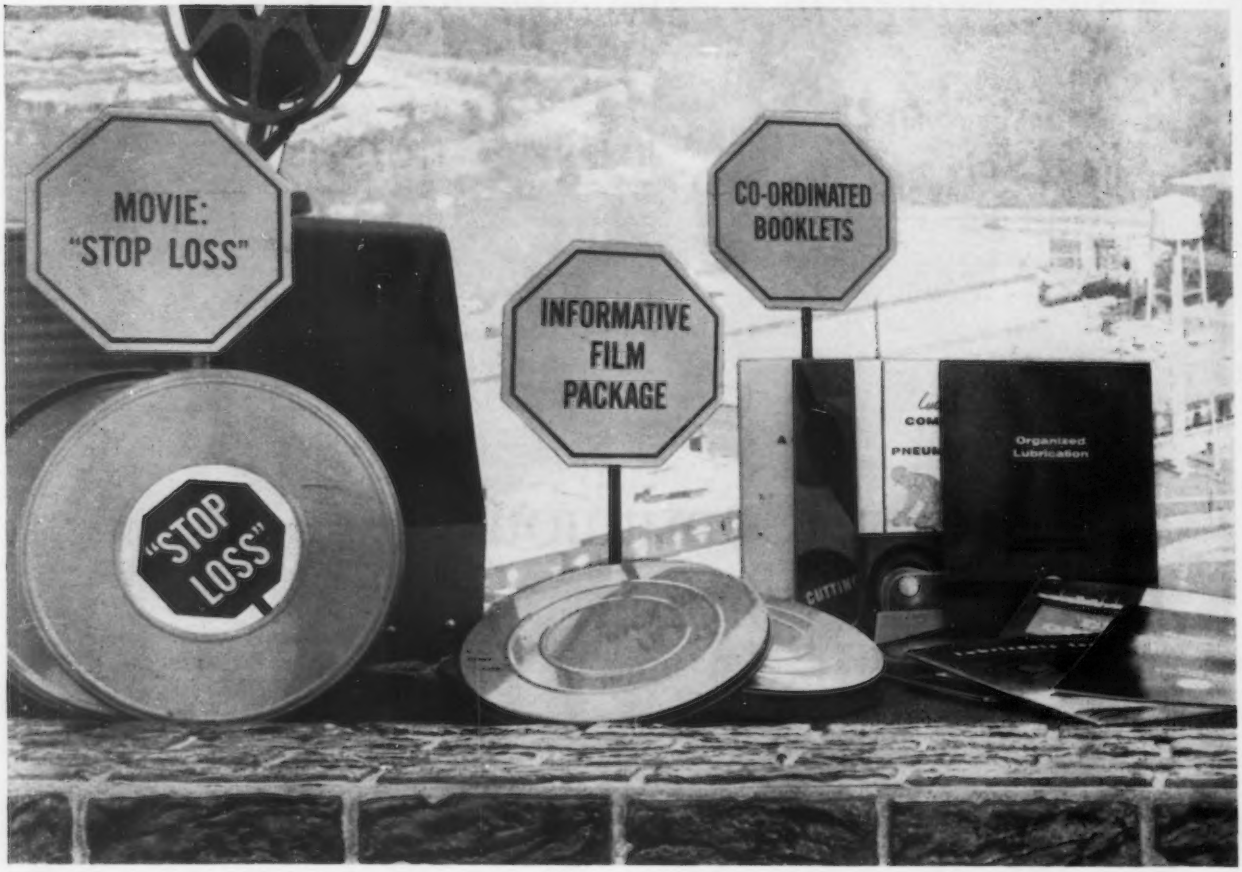
In Canada — Bailey Meter Company Limited, Montreal

BAILEY METERS



MOVIE: "STOP LOSS WITH ORGANIZED LUBRICATION," a new 20-minute color-and-sound film that dramatizes the opportunities for cost control through Organized Lubrication.

INFORMATIVE FILM PACKAGE for mill departments consists of movies on greases, hydraulic oils, cutting oils, etc., designed to help those involved with their selection and application.

HERE ARE THE TOOLS THAT CAN HELP YOU

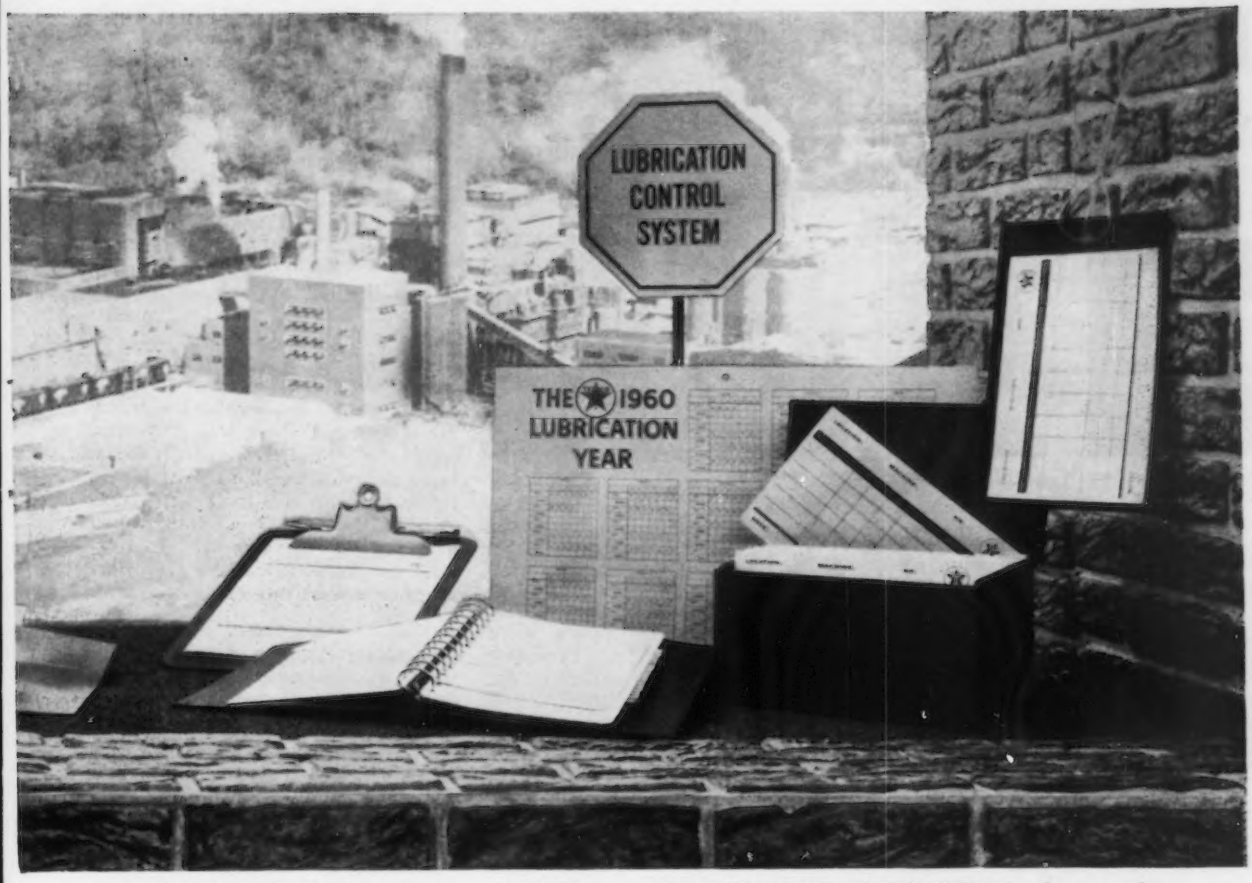
INCREASE YOUR NET PROFITS

Texaco's new "Stop Loss" Program is designed to cut maintenance costs by modernizing lubrication practices. If yours is an average mill, the results can add 4 per cent to your net profit.

Downtime in the average paper mill costs *$60 a minute!* At that rate it doesn't take much to take a sizeable bite out of profits. Yet in many—in fact, *most*—cases the equipment failure could have been avoided and the resultant savings turned *directly* into profits.

The 4 per cent figure is not hypothetical. It's what the Small Business Administration has found the average U. S. industrial operation can tack on to profits by organizing its lubrication.

Texaco's Program is designed to help you. Texaco has developed a "Stop Loss" Program specifically designed to help you cut maintenance costs via better lubrication practices. It will help you stretch equipment life, minimize downtime, reduce lube inventory, even cut purchasing costs. It costs virtually nothing to install, yet will start turning maintenance savings into profits almost immediately.



CO-ORDINATED BOOKLETS covering almost every facet of lubrication can be used as guides in specific areas.

TEXACO LUBRICATION CONTROL SYSTEM takes the guesswork out of all lubrication scheduling—makes sure that the right lubricant goes in the right place at the right time.

BY AS MUCH AS 4 PER CENT!

Can your mill pass this test?

Q. Is there anyone in your mill with direct responsibility for all lubrication? Yes ☐ No ☐

Q. Is there any mill-wide system for making sure that equipment gets lubricated on schedule? Yes ☐ No ☐

Q. Are your oilers qualified men with a knowledge of the mechanisms to be lubricated? Yes ☐ No ☐

Q. Have you made a lubrication study to determine if the right lubricants are being used at the proper frequencies? Yes ☐ No ☐

If the answer is "no" to any of the above questions, it's virtually certain that a Texaco "Stop Loss" Program can improve your profit picture.

See for yourself how "Stop Loss" works! Texaco has just released a new color-and-sound movie to dramatize the benefits of good lubrication practices. It's called "Stop Loss With Organized Lubrication" and we think it would be profitable for you to see it. For an early showing in your mill, mail the coupon today! Texaco Inc., 135 East 42nd Street, New York 17, New York.

MAKE YOUR RESERVATION TODAY!

TEXACO INC., Dept. PT 21
135 East 42nd Street
New York 17, N. Y.

I would like to see your new movie "Stop Loss With Organized Lubrication." Please call to arrange a showing.

Name_____ Title_____

Firm_____

Address_____

City_____ Zone____ State_____

TEXACO

PJT NEWS OF SUPPLIERS

J. L. Hanchette

F. C. Faulkner

Earl Ruth

A. Howland

Huyck Felt Co., Rensselaer, N. Y., and Aliceville, Ala., has announced the appointment of James L. Hanchette as field service engineer for Connecticut and portions of Massachusetts, New Hampshire and Vermont. A graduate of Clarkson College of Technology, Mr. Hanchette has been manager of Huyck's customer service laboratory and has worked closely with papermakers throughout the United States for several years. He is familiar with felt design, manufacture and application and has a broad knowledge of practical papermaking.

Stanley Steel Strapping, division of The Stanley Works, New Britain, Conn., has appointed Frederic C. Faulkner sales representative in northern New Jersey.

Mr. Faulkner has been transferred to New Jersey from Connecticut, where he has been a Stanley Steel Strapping sales representative for several years. Previous to his employment with Stanley, he was a research chemist for American Rolling Mill, Middletown, Ohio.

Hercules Powder Co., Wilmington, Del., announces three major executive appointments.

Richard J. Both, director of development for the Naval Stores Department, was appointed assistant general manager of the company's Virginia Cellulose Department.

Spencer H. Hellekson, assistant director of operations for the Paper Makers Chemicals Department, was named assistant general manager of the Naval Stores Department.

E. Langford Jones, director of sales for the Virginia Cellulose Department, was appointed assistant general manager of the Synthetics Department.

The Procester Co., Atlanta, Ga., has been appointed sales agency for Conoflow Corp., leading manufacturer of final control elements. J. Robert Simpson, Conoflow's sales manager, announced that Procester will be exclusive representative for Conoflow in the state of Georgia and eastern Tennessee.

Earl Ruth is the principal of the newly formed company. Mr. Ruth received his B.S. in engineering from the Missouri School of Mines, at Rolla in 1942. Prior to forming his own sales organization he worked as a chief chemist, design engineer, sales engineer and district sales manager.

Conoflow Corp., a subsidiary of the Walworth Co., has plant and executive offices at 2100 Arch Street, Philadelphia 3, Pa.

Sandy Hill Iron and Brass Works, Hudson Falls, N. Y., announces that Amasa Howland, direct descendent of one of the country's oldest papermaking families, has recently joined the sales engineering staff as its sales representative in Michigan, Wisconsin and Minnesota.

He is a great, great grandson of Stephen Howland, who built a paper mill at Kane's Falls in Washington County, New York, in the early 1800's. In 1844 this same Stephen Howland erected the first manila paper mill in the United States at Sandy Hill, N. Y., known since 1910 as Hudson Falls.

The present Mr. Howland, a graduate of Union College, was previously associated with Sandy Hill for a brief period after World War II. He comes to Sandy Hill from the Thomas Phillips Co. of Akron, Ohio, which he served in the capacity of president and general manager for nine years before its recent dissolution.

Reinhold Gould, Inc., New York, N. Y., has opened a Stockholm office to distribute pulp, paper and board products from Scandinavia directly to overseas markets. They have further announced that this will enable Reinhold Gould to render the best possible service by direct representation from Scandinavia.

Reinhold Gould's world headquarters are located at 535 Fifth Avenue, New York City, and the company has a large staff of agents throughout the world.

The address of the new office is—Reinhold Gould A.B., Hamngatan 1A, Stockholm, Sweden.

"So, this is the fourdrinier, those down there must be the onedrinier, twodrinier and threedrinier."

Hercules Powder Co., Wilmington, Del., has elected Elmer F. Hinner and John M. Martin vice presidents. The two new vice presidents will take office immediately. Both men were also elected members of Hercules Executive Committee.

Mr. Hinner has been general manager of the company's Cellulose Products Department since 1954, and has been a member of Hercules' Board of Directors since 1952.

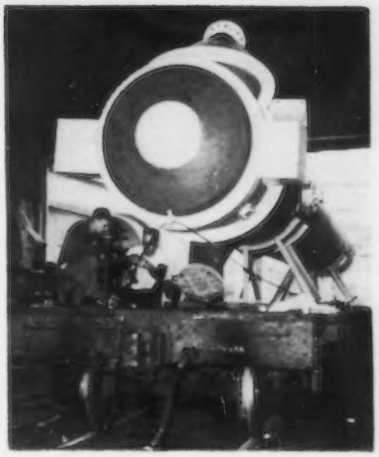
Mr. Martin has been general manager of Hercules' Explosives Department since 1953, and a member of the Board of Directors since that same year.

Mr. Hinner has had the responsibility for the company's rapid development in polyolefins. Hercules built a polyethylene and polypropylene plant in 1957 at Parlin, N. J. Completion of a second and larger polyolefins plant at Lake Charles, La., is scheduled in January.

Charles A. Grant has been named director of sales of the Hercules Virginia Cellulose Department. Arloe R. Olsen was named assistant director of sales at the same time.

Mr. Grant, who has been sales manager of the Huron Milling Division of his department since 1956, is a native of Louisville, Ky., and a graduate of Duke University. He joined Hercules as a chemist at the Research Center near Wilmington following graduation. In 1947 he was named technical sales representative in the company's Chicago office, and five years later he became district manager in that office. In 1955 he transferred to Wilmington as a sales supervisor, and three months later became manager of chemical cotton sales for the Virginia Cellulose Department.

Mr. Olsen has been sales manager of the department's Cellulose and Chemicals Division since 1957. A native of Cedar Falls, Iowa, and a graduate of Iowa State College, he joined Hercules in 1933 as a chemist at the Research Center.



M&D CONTINUOUS DIGESTER, shown at an unusual angle, looks like a rocket or a strange type of underwater craft. It is being prepared for shipment overseas. Made of stainless steel, the 52-foot-long digester has an I.D. of 60 inches. Designed by The Bauer Bros. Co., Springfield, Ohio, and built by the Graver Tank & Mfg. Co. Division of Union Tank Car Co., East Chicago, Ind., this particular unit was one of two identical digesters shipped to Honshu Paper Manufacturing Co., Ltd., Japan. They will be used in that company's 300 T/D semi-chemical plant at Kushiro.

The Orr Felt and Blanket Co., Piqua, Ohio, announces that company engineers are preparing to install new felt manufacturing equipment ordered some months ago. This includes needling machines, as well as drying and other equipment. In order to provide room for the new machinery, the company is discontinuing the manufacture of bed blankets and apparel fabrics, thus making available space needed for felt operations.

American Cyanamid Co., New York, N. Y., announces the appointment of William J. Rapoport as an assistant to the department manager of the Paper Chemicals Department.

Mr. Rapoport became associated with Cyanamid in 1949 at the company's Stamford research laboratories. He has since served in a variety of sales and technical posts in several divisions of the company. Prior to his new appointment, he had been a field representative for the market development division. He is a graduate of the Massachusetts Institute of Technology and the Wharton Graduate School of Business Administration.

Brandon Sales, Inc., announces that it will now handle directly sales of Brandon dryer felts in the Northern and New England territory, formerly handled by Orton Corp. Frank Clawson, Brandon's regional sales manager, will concentrate his efforts in this territory. K. E. Fryfogle, Brandon president, in making the announcement stated his regret that Sam Orton, president, Orton Corp., had found it necessary for internal reasons to resign the Brandon account.

American Viscose Corp., Philadelphia, Pa., has opened the first Southwestern District sales office for its new Industrial Packaging Department in Dallas, and has named Philip Raley to the post of district manager.

The first product of the new American Viscose Industrial Packaging Department is Avistrap Cord Strapping, a high-tenacity rayon cord which represents a new idea in industrial packaging. Avistrap, now in production at American Viscose Corp.'s Lewistown, Pa., plant, offers economy, ease of handling, and greatly increased safety for shipping personnel since it has no jagged ends and will not lash out and cause injury.

RODNEY HUNT
SHAF-TITE® ROLLS
METAL • RUBBER • WOOD • PLASTIC
RODNEY HUNT MACHINE CO., 10 MAPLE ST., ORANGE, MASS.
Exclusive U. S. Agents for FILLED CALENDER ROLLS made by David Bentley, Ltd., Manchester, England

PJT NEW EQUIPMENT & SUPPLIES

Woven Carcass Rubber Conveyor Belts Vulcanized in Field

A woven carcass rubber conveyor belt, called Industrial Uniflow, reported to withstand abuse far beyond conventional ply-type belting, is announced by The Goodyear Tire & Rubber Co., Akron 16, Ohio. The belt is said to also offer previously unknown resistance to cuts and tears. Furthermore, it is pointed out, the Uniflow belt is the first woven carcass that can be vulcanized into an endless unit in the field.

Produced in continuous lengths without cover seams, Uniflo features a carcass of nylon reinforced cotton yarn woven into a special interlocking complex.

Rubber rivets penetrate deep into the woven carcass to insure maximum cover adhesion, it was explained. Without the use of a breaker the product is said to offer unusual resistance to cover separation, even under most severe usage.

The conveyor material was described as having 10 times the rip resistance of conventional cotton duck belts and three times that of the best cotton-nylon ply belts of comparable strength. It also provides built-in protection against internal ruptures resulting from trapped lumps and excessive pulley build-up.

Built-in impact resistance, fastener holding qualities, out-troughing and tracking properties and better resistance to edge wear are other advantages of the new belting; it was pointed out.

High Solids, Low Viscosity Calcium Stearate Dispersion

A calcium stearate dispersion which is high in solids and of low viscosity has been developed by The Harshaw Chemical Co. Composed of 46 per cent solids, this product is thin, fluid, white, cream-like, and aqueous, and has dispersibility achieved through special processing techniques using minimum amounts of dispersing additives. The extremely fine calcium stearate particle size and specially selected dispersing aids serve to assure good package stability.

High in solids yet low in viscosity, this dispersion can be readily pumped or poured. The low viscosity also permits accurate metering and spraying, the aqueous base eliminating the hazards associated with flammable or toxic solvents.

Harshaw Calcium Stearate Dispersion 46 per cent is particularly useful in those instances wherein it is desirable to avoid the nuisance of dusting associated with the dry powder form of regular calcium stearate. It is claimed to be ideally suited for all high-speed coating operations employed in the manufacture of machine-coated paper.

The Harshaw Chemical Co., 1945 East 97th Street, Cleveland 6, Ohio.

DAVEY VIBROMETER Model-1 is used for vibration testing of motors and other equipment by measuring the oscillation of a light beam on a graduated ground glass scale. The glass scale is mounted at an angle of 30° for more convenient reading. Models are available with full scale readings of .032, .016, .004 and .002 inches. Hand held models are also available. The Vibroscope Co., Glenford, N. Y.

Idler Sleeve Improves Conveyor Belt Cleaning

A conveyor idler sleeve designed to improve cleaning action on belts during return flights has been developed by The Goodyear Tire & Rubber Co., Akron 16, Ohio.

The idler sleeves, using two treads rather than the single tread used on

conventional sleeves, flex the belt evenly as it passes over the idler rollers. The flexing action separates the caked accumulation from the belt surface and causes it to flake off the belt.

Advantage of the Sta-Kleen Dubl-Tread sleeve is its ability to flex the belt surface into twice as many sections as a single tread, according to the company. Each sleeve has a channel between the two treads to receive a band that anchors the sleeve to the idler.

Sleeves are fabricated of a two-ply duck foundation with treads built up to ½-, ¾-, or one-inch wall thickness. The sleeves are built to the diameter of the idler roll, it is pointed out, to provide for easier application and longer life.

High Accuracy Pneumatic Transmitters with Servo Power

An integrated line of high-accuracy pneumatic transmitters with optional servo power is announced by Taylor Instrument Companies. Known as the 210T and 211T Transcope Transmitters, the instruments are claimed to provide an input-to-output accuracy of ½ per cent in the measurement of gage pressure, volumetric pressure, temperature, and volumetric load. The introduction of a sealed cartridge servo unit to maintain this high transmission accuracy under load is an outstanding feature of the new design. Typical loading arrangements might be the use of auxiliary process alarms, or encoder

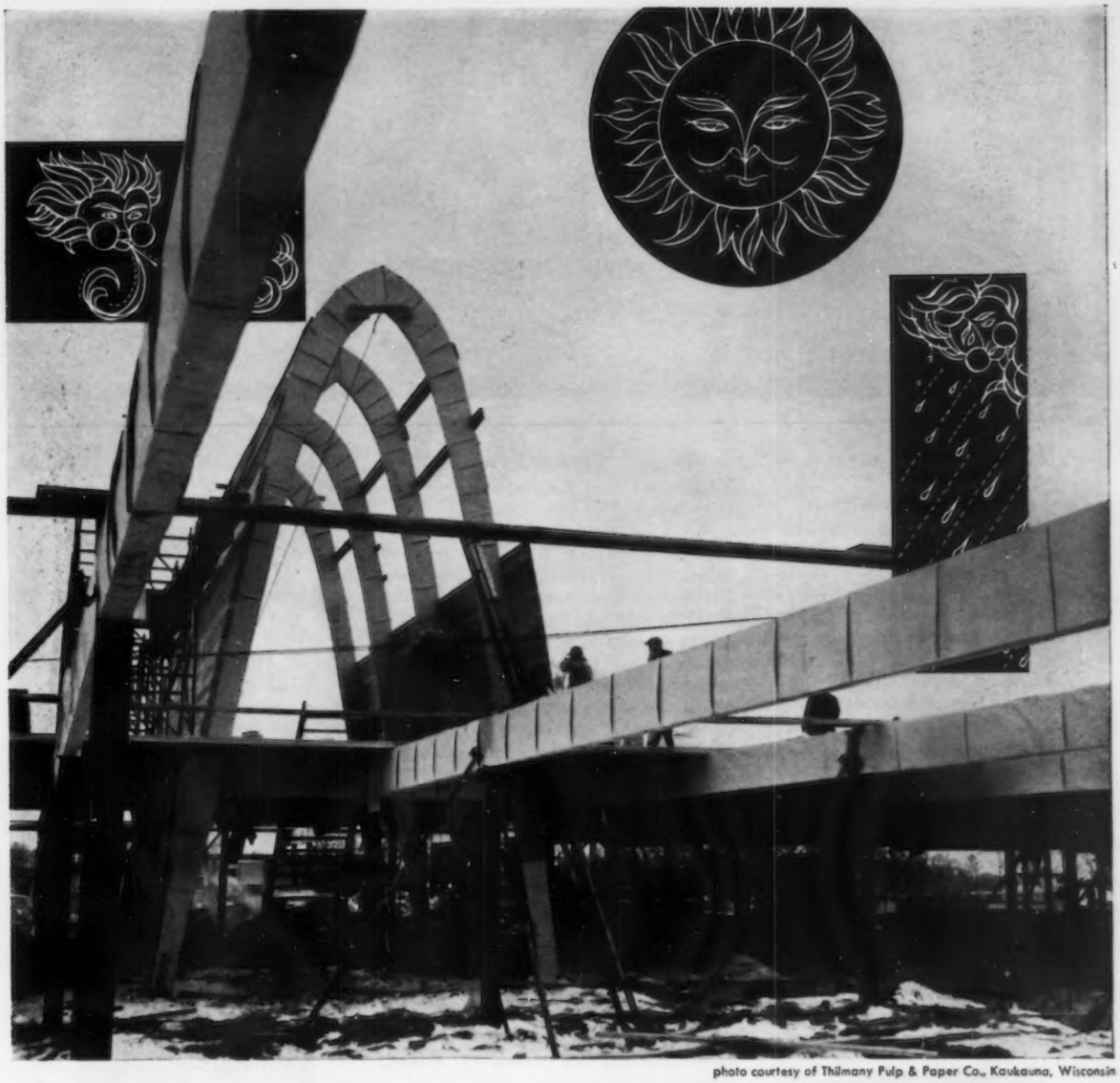


photo courtesy of Thilmany Pulp & Paper Co., Kaukauna, Wisconsin

ACRI-FLO 151 helps wrap out the weather

For years paper manufacturers have searched for an economical, non-staining protective kraft that would wrap out the weather. Now that search has ended! With Acri-flo 151 it is possible to produce such a wrap . . . a high-impact, duplex kraft from less costly sheets. This is only one of the many ways Acri-flo has helped the paper industry produce better products at lower cost. A letter from you today will bring you proof of how Acri-flo can help improve your paper products!

ACRI·FLO
offers:
Easy processing
Excellent UV heat-light stability
Ideal top coat
Creating Progress Through Chemistry
Chemical Division GENERAL

THE GENERAL TIRE & RUBBER COMPANY
Chemical Division · Akron, Ohio

Chemicals for the rubber, paint, paper, textile, plastics and other industries: **GENTRO SBR** *rubber* **GENTRO-JET** *black masterbatch* • **GEN-FLO** *styrene-butadiene latices* • **GEN-TAC** *vinyl pyridine latex* **GENTHANE** *polyurethane elastomer* • **ACRI-FLO** *styrene-acrylic latices* • **VYGEN PVC** *resins and compounds* • **KURE-BLEND** TMTD *masterbatch* • **KO-BLEND** *insoluble sulfur masterbatch*

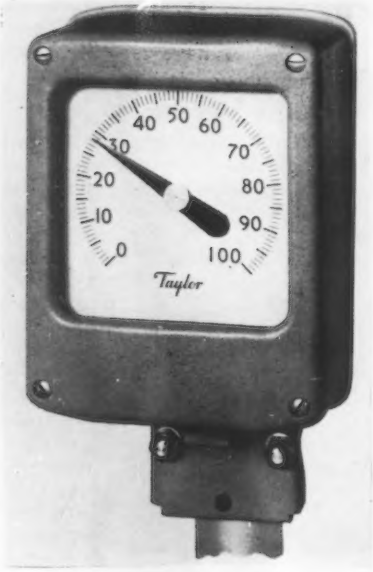
The DRAPER Felt
DRAPER BROTHERS COMPANY
CANTON, MASS.

takeoffs, which would impose a load on the pointer system.

Low friction encountered in the sealed indicator-driving mechanism permits a 0.1 per cent of input-span sensitivity to, and little deterioration of, low-energy input signals. A large, 11¾ inch scale, readable at 35 feet, provides an indication accuracy within 1 per cent of actual value of the variable being measured. The 3-15 p.s.i. transmitter output may be fed directly to other indicating, recording, or controlling stations.

Operating on process air, the transmitters are provided with a standard bracket to permit either surface or pipe mounting. Weighing only 9 lbs., the instrument is housed in a 9 x 7 x 4¾ inch aluminum case with a resin finish to withstand severe exposures.

A non-indicating model (the 211T), with the same basic features, is also being offered. Write for Bulletin 98385 from Taylor Instrument Companies, Rochester 1, N. Y.



Teflon Film Cementable With Common Adhesive

The development of a "Teflon" FEP-fluorocarbon film one side of which is cementable with common adhesives, has been announced by DuPont's Film Department.

Previously, the only way to provide a surface receptive to adhesives was by a patented treatment with alkali metals in organic media. Because of the film's inert and pore-free properties, the only other method of laminating it to another material was by heat-sealing or heat-bonding, which ruled out use of all substrates sensitive to extreme heat.

Development work to date indicates that the new film type can be anchored with many standard adhesives to a variety of engineering materials for use as an "anti-stick" or protective surface. End-use applications using epoxy resins as bonding agents, include liners for glass-filament-wound chemical tanks, and release cladding on heated or chilled processing rolls.

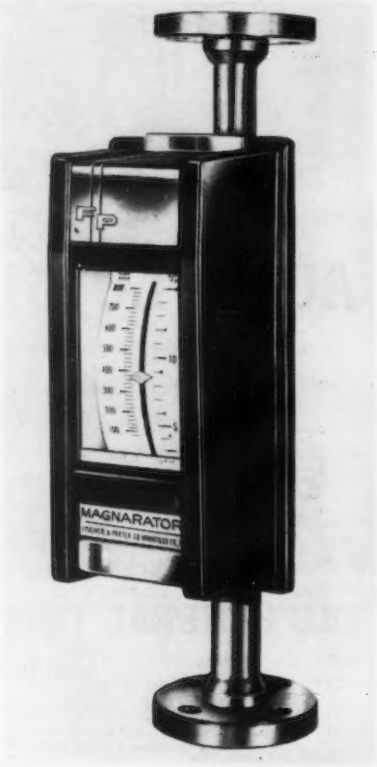
Using rubber adhesives, the FEP film type can be cemented as liner for rubber and fabric hose and tubing, and over rubber and absetos for chemically resistant diaphragms and seals. Other standard adhesives have been used to apply the film to fabric and rubber coneyor belting, and to make several types of pressure sensitive tapes. It may also be used, without adhesives, to provide a printable or "pottable" surface on spiral-wrapped, heat-sealed jacketing for wire and cable.

"Teflon" FEP-fluorocarbon film, in addition to sharing all the properties of the older TFE-fluorocarbon films at temperatures up to 400° F, is reported to be heat-sealable and heat-bondable to itself and many other materials, has very low permeability to liquids, gases, moisture and organic vapors, is pinhole-free, can be vacuum-formed and metallized, ad is transparent in thin gauges. Testing to date indicates the film's outdoor life is virtually unlimited.

The "cementable" type is now being offered in developmental quantities at a premium over the standard film. It is available in widths up to 30 inches in gauges from one to 40 mils. E. I DuPont de Nemours & Co., Wilmington, Del.

Through Flow Rotameter Needs No Extension

The extensionless Magnarator, an instrument which combines the functions of an indicating rotameter and

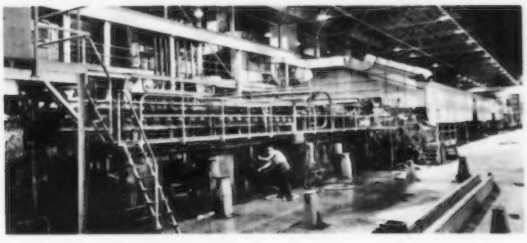


S. R. CHRISTENSEN

Twin Open Side Calender Stack, No. 4 Machine, Roanoke Rapids, North Carolina

Halifax Paper Company, Inc.

A Division of Albemarle Paper Mfg. Co.

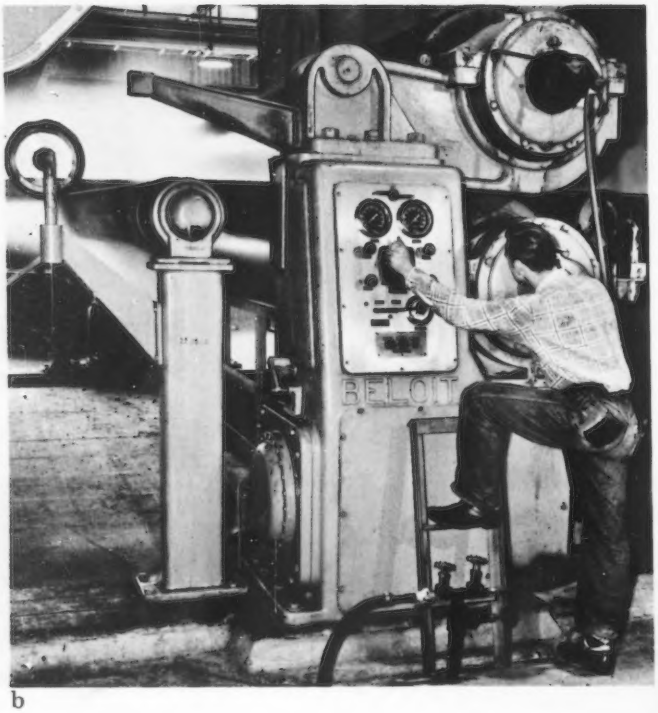


New 246″ Kraft paper machine at Halifax Paper Company, Inc. has boosted the mill's total daily production of Kraft paper to over 600 tons per day. The new No. 4 machine—the "Dixie Queen"—operates next to the "Southern Star," a sister 246″ Beloit machine installed in 1953. For further details, please turn the page.

a

The "Dixie Queen," new 246" Kraft paper machine at Halifax Paper Company, Inc.

The "Dixie Queen" was running at speeds up to 1200 fpm within 72 hours and salable paper was produced six hours after start-up. The Fourdrinier and dryer sections are arranged to permit future expansion of productive capacity. (**a**) 246″ Beloit removable Fourdrinier and Type E air-cushioned inlet. (**b**) Breaker stack equipped with air-operated nip pressure control. (**c**) Beloit heavy-duty Kraft-type pneumatic reel. (**d**) Straight-through suction press with open couch draw.



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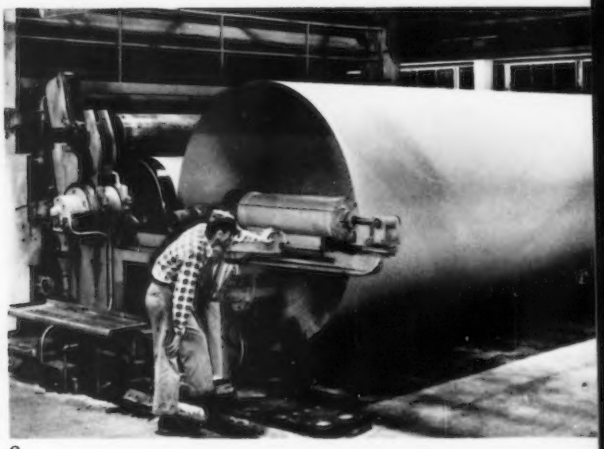

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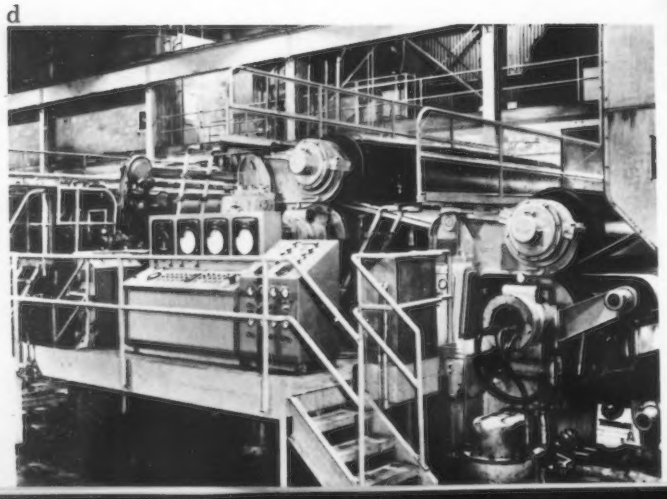

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BELOIT

PAPER MACHINERY

your partner in papermaking

a pneumatic transmitter, has been introduced by Fischer & Porter Co., Warminster, Pa. The instrument measures liquid or gas flows and is claimed to be accurate to within 1 per cent over its 10 to 1 range.

In operation, the flow travels vertically upward through the metering tube which has no recessed or stagnant areas. As the float in the metering tube is magnetically coupled to a rotating follower in the pneumatic transmitter, a positive continuous bond is assured. A dual reading 4 inch vertical output scale indicates the flow rate and the transmitted pneumatic signal which is linear. A horizontal reading scale shows the float position independently of the air supply and the transmitter output.

The F&P Magnarator is easy to install and service and eliminates the need for offset piping, spools, tees, purges, and bleeds.

The single model transmitter can be used with any metering tube ½ to 2 inches in diameter covering flows equivalent to 1 to 100 g.p.m. water and 4 to 400 s.c.f.m. air. Metering tubes and floats are manufactured from a choice of materials of construction depending upon fluid conditions. Steam jacketed and high pressure models and an extension design for use with meters larger than 2 inch pipe size are also available. For complete information, write Fischer & Porter Co., 676 Jacksonville Road, Warminster, Pa.

'Heat Tool' Bonds Thermoplastic Pipe

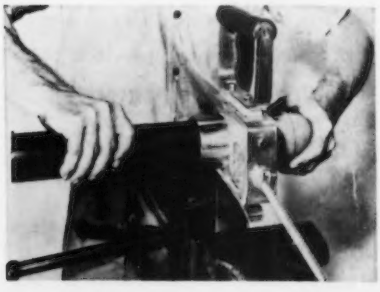
Development of a small, hand-portable 'heat tool' to bond solvent-resistant thermoplastic pipe and fittings is announced by Tube Turns Plastics, Inc.

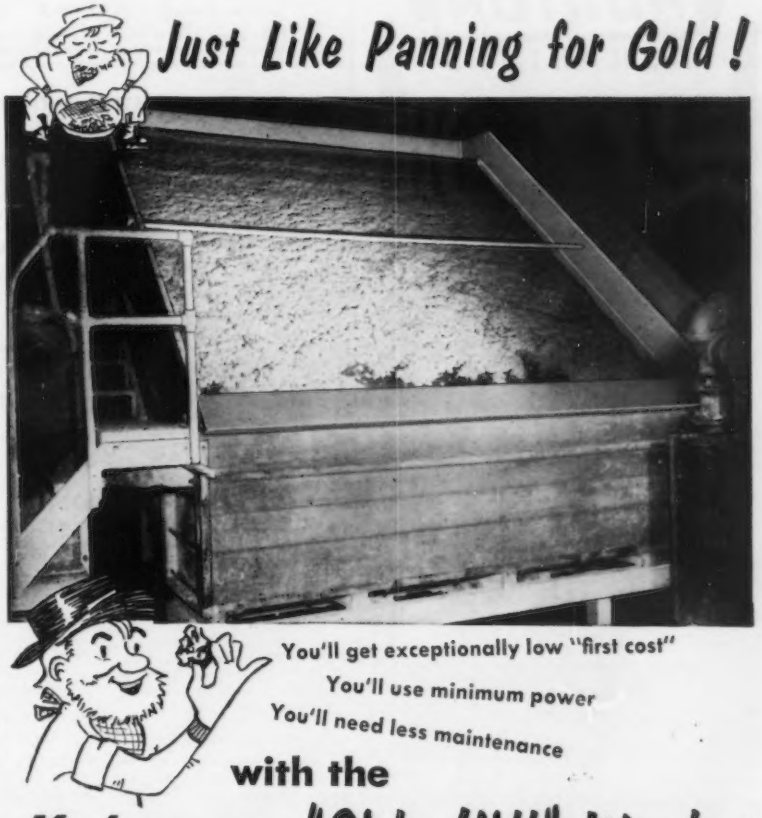
The company said the unit, named "Thermo-Seal" is "a significant break-through" in the joining of materials such as Penton chlorinated polyether, polypropylene and polyethylene in the form of industrial piping. The advanced method of joining obviates past difficulties in joining these materials by solvent cementing or threading, a spokesman said.

The method involves homogenous inter-face thermal fusing of pipe and socket-type fittings. A permanently leakproof bond is made in a matter of seconds and is ready for pressurization almost instantly, the company said.

The Thermo-Seal tool is an aluminum assembly with a cast-in tubular electric heater element and two surfaces upon which pipe ends and fittings sockets are heated simultaneously to fusing temperatures. The entire bore of each fitting socket and the mating surface of the pipe end are thus heated, after which the parts are removed and joined, cooling to a permanent bond in about ten seconds.

The Thermo-Seal unit, available in two models, for pipe sizes up to 2½ inches and up to 6 inches, weighs less than ten pounds and can be easily carried in one hand. It operates on 110 volts 60-cycle a.c. power. A thermostat controls the heating assembly in the narrow, uniform temperature range required for proper thermal fusing. Tube Turns Plastics Inc., 2929 Magazine St., Louisville 11, Ky.





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Kalamazoo "Side Hill" Washer

These practical slide washers give a better and more effective wash job than other washing methods. They may also be used as thickeners and savealls. These units are designed by Kalamazoo engineers — experts in serving the paper industry for more than 90 years. Our experience enables us to completely prefabricate the units of top quality materials. Installation supervision can be furnished.
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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Sept. 24	Oct. 1	Oct. 8	Oct. 15	Oct. 22
1960	93.6	95.5r	93.6r	95.1r	94.6
	Sept. 26	Oct. 3	Oct. 10	Oct. 10	Oct. 24
1959	97.1	97.4	98.4	97.1	96.3

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.0	96.9	97.7	96.2	81.2	91.7‡	88.5‡	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	92.2

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.2	91.6	95.9	98.5	91.2	86.9	92.4	93.9
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	92.2	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Sept. 24	Oct. 1	Oct. 8	Oct. 15	Oct. 22
1960	93	93	92	94	93
	Sept. 26	Oct. 3	Oct. 10	Oct. 17	Oct. 24
1959	97	97	98	98	94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	92	94	92	78	93	87	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	96	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Oct. 22, 1960	LAST WEEK ENDING Oct. 15, 1960	CUMULATIVE TO DATE Jan. 1, 1960 to Oct. 22, 1960
% Activity	93%	94%	91%
Total	327,941	326,613	12,997,224
Containerboard—Domestic Use.	180,031	174,249	6,718,586
Liner	125,839	116,931	4,505,847
Corrugating Material	49,385	52,297	1,998,411
Chip & Filler Board	4,807	5,021	214,328
Boxboard—Domestic Use	91,009	93,950	3,995,741
Folding	56,064	58,032	2,393,507
Set-Up	10,501	11,295	457,569
Special Food Board	24,444	24,623	1,144,665
Other Paperboard	56,901	58,414	2,282,897
Containerboard Type	26,882	27,283	1,090,865
Boxboard Type	30,019	31,131	1,192,032
Total Orders			
Received	320,748	308,826	
Unfilled End of Week	435,919	437,157	

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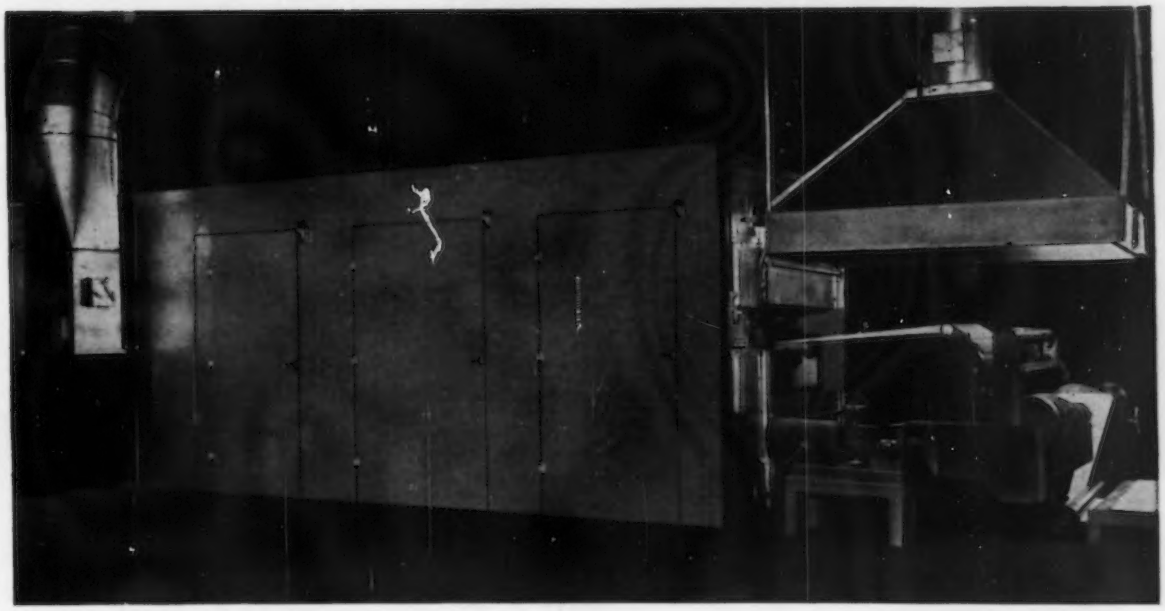
EGAN HIGH VELOCITY DRYERS INCREASE TREATER PRODUCTION

2 to 4 times faster than conventional systems

The versatile high-speed Egan Treater Installation pictured below is suitable for a wide range of impregnations of paper, cloth and glass fabrics with thermosetting resins. Outstanding features of the dryer include an adjustable air flow, with controlled flow pattern, and removable nozzles for quick and easy cleaning.

TYPICAL PRODUCTION SPEEDS (35′ Dryer Length)	
MELAMINE OVERLAY	55 fpm
MELAMINE PRINT	45 fpm
PHENOLIC CORE STOCK	150-200 fpm



Write or phone RAndolph 2-0200 for complete information.

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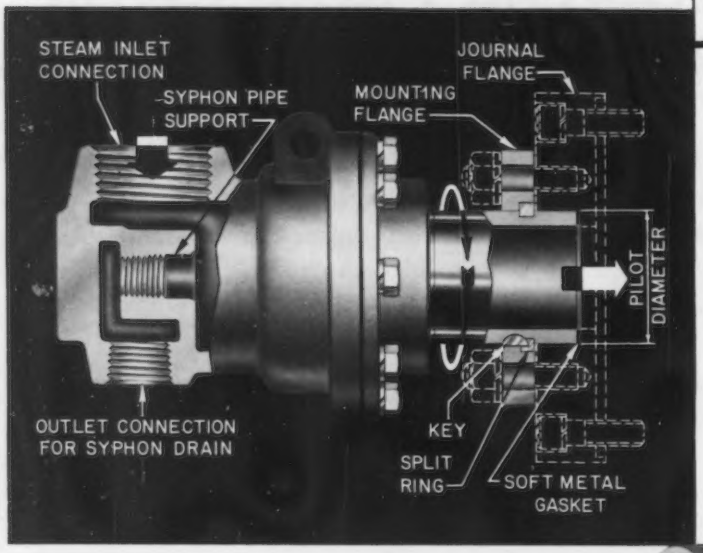
EASY INSTALLATION

and accurate control of concentricity



2"–2½"–3" sizes with FLANGE CONNECTIONS

HERE is the rotary joint by Barco that gives you everything you want in design and performance:

EASY INSTALLATION—Only an end wrench is required to draw up or loosen four nuts on the mounting flange studs for installation or easy removal of joint.

TIGHT SEAL—No pipe thread dope required for sealing. End of rotating sleeve seats against soft metal gasket.

CONTROLLED CONCENTRICITY—NO rotating "wobble". Accurate pilot diameter on sleeve establishes and holds concentricity.

WIDE SPACED BEARINGS—Two, instead of one . . . increased bearing area. No lubrication required. Lowest friction. Bearings heat shrunk in place under compression for greater strength.

RESISTS SEAL RING BREAKAGE—The spherical seal ring is under compressive, not tensile, loading. Self-adjusting for wear. Seal withstands shock loads and alternating hot and cold service.

200 P.S.I. STEAM RATING—Super duty performance at *no extra cost*. Suitable for either single flow or syphon flow service . . . one basic seal for steam, air, water, oil, gas. For temperatures to 450°F. or up to 600°F. under certain conditions.

ENGINEERING RECOMMENDATIONS—Barco will be glad to furnish you with detailed information, including dimensions and specifications for flanges. ASK FOR CATALOG SHEET 331.

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PJT NEW LITERATURE

Electronic Back Gauge

Plagued with the problem of how to automate the back gauge movement of your existing trimmers for higher accuracy and increased machine production? Smith & Winchester says their "Spacemastre" Electronic Automatic Spacer provides an economical answer. Bulletin 6S. 6 pp. Smith & Winchester, Mfg. Co., So. Windham, Conn.

Industrial Chemicals from Cyanamid

Lists and gives descriptions and application of the wide range of chemicals produced and sold by the Industrial Chemicals Division of American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y. Includes those handled by the Paper Chemicals Dept. 6pp.

Model 406 Crane Carrier

Includes complete specifications as well as many of the outstanding features of the Bantam Model 406 crane carrier. Standard equipment on the Model 406 carrier includes a 220 h.p. gas engine, air brakes on all wheels, and power steering. Bulletin A-303. 2 pp. Schield Bantam Co., Waverly, Iowa.

Paper, Paperboard Coating Equipment

Describes the complete line of on and off-machine paper and paperboard coating equipment manufactured by the Dilts Division of Black Clawson. Includes coated samples plus description of roll, blade, bar, and extrusion coaters, gummers, coating dryers. Bulletin 27-DM. 36 pp. Black-Clawson Co., Fulton, N. Y.

Sto-Foil Nip and Crown Tester

Stowe-Woodward, Inc., has made available for general distribution a product bulletin on Sto-Foil — a new and simplified method for testing both the nips and crowns of rubber-covered rolls. Bulletin describes the procedure for taking nip and crown impressions with the firm's patented aluminum foil. Product Service Dept., Stowe-Woodward, Inc., Newton Upper Falls, Mass.

Vertical, Single-Stage Centrifugal Pumps

Illustrates and describes the line of Vertical Single-Stage Split Case Centrifugal Pumps announced by Aurora

Pump Division, The New York Air Brake Co., Aurora, Ill. Pumps are said to be particularly suitable for cooling towers, circulating, boiler feed, industrial water services, and booster services. Capacities range to 6000 g.p.m. and heads to 380 feet. Bulletin. 2 pp.

Volatile Liquid Pumps

Describes and illustrates vertical volatile liquid pumps, bulk station transfer pumps, and vertical inline booster pump for low suction conditions manufactured by Layne & Bowler, Inc., Memphis 8, Tenn. Bulletin 101. 6 pp.

Three Guides to Solving Felt Cleaning Problems

Huyck Felt Co., the first felt manufacturer to offer papermakers a felt washing service, undertook an exhaustive study of felt cleaning, then published its findings in PAPER TRADE JOURNAL in three parts: (1) "Chemical Cleaning Agents," (2) "Removal of Specific Plugging Materials," and (3) "Practical Cleaning Methods."

It is interesting to note that these same sub-divisions are used for easy reference in Huyck's latest felt bulletin, "Cleaning Papermakers' Felts—Volume II, No. 3," written by Ralph H. Beaumont, Jr., and James L. Hanchette, director of chemical research and field service engineer respectively at Huyck's.

This bulletin, first published in 1954, has been fully revised and includes the latest information on felt cleaning materials and techniques. It is reputedly the only complete and comprehensive publication available on felt cleaning.

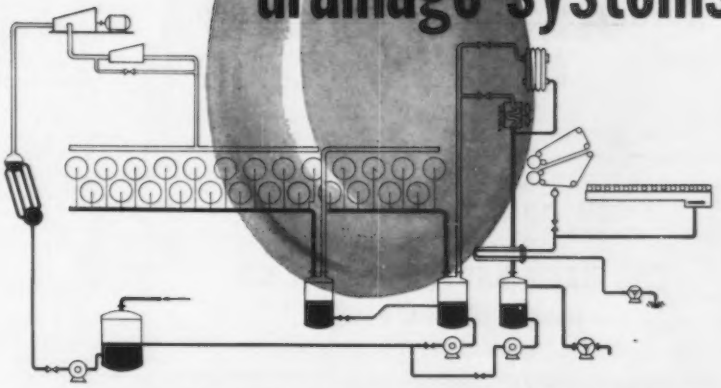
A second Huyck felt bulletin, "Mechanical Methods of Felt Cleaning—Volume II, No. 12," describes in clear-cut language the mechanical felt cleaning systems most frequently used in the United States. Its purpose: to help papermakers decide which of the various methods is most appropriate for a given machine situation.

A third practical aid for the improvement of felt cleaning is the Felt Cleaning Selectograph developed by Huyck's field service engineer, Rupert H. Austin, Jr. Used by itself, or as a companion "tool" to the aforesaid felt cleaning bulletins, the Selectograph provides a quick, easy means of determining shutdown washing procedures for specific felt plugging problems. It is the first and only guide that tells papermakers, at a glance, what solution to employ, how long to use it and at what temperature.

Notwithstanding the fact that Huyck's new felt cleaning bulletins and Felt Cleaning Selectograph will undoubtedly help to solve "wash day" problems in many mills, it cannot be emphasized too strongly that "generalizations" do not always apply. Most papermakers, hampered by especially difficult felt cleaning problems, call upon Huyck's Customer Service Laboratory to develop washing procedures specifically tailored to meet their individual requirements.

The accompanying photograph shows Huyck Felt Bulletins, "Volume II, No. 3—Cleaning Papermakers' Felts," and "Volume II, No. 12—Mechanical Methods of Felt Cleaning" with Felt Cleaning Selectograph.

ELIMINATE DRYER CONDENSATE PROBLEMS with RMF dryer drainage systems



• Increase Dryer Capacity • More Uniform Drying
• Higher Production • Prevent Reject Sheet

Our Dryer Drainage Systems will effectively eliminate your water condensate problems. Drying capacity is substantially increased and you get more effective drying at lower temperatures. In addition, RMF Systems result in more uniform drying across the sheet, assuring automatically graduated dryer temperatures. This lessens shrinkage, cracking, curling, wet streaks and hardening.

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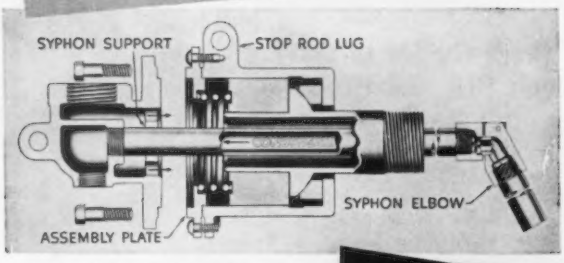

Type "SBP" shown is completely self-supporting. Like all Johnson Joints it has no packing, needs no lubrication or adjustment. The syphon elbow replaces unwieldy curved condensate drainage pipes with two straight pipes, hinges to pass right through the joint. Write for Bulletin S-3002. Johnson Rotary Pressure Joints are available for all operating speeds, pressures, mountings.

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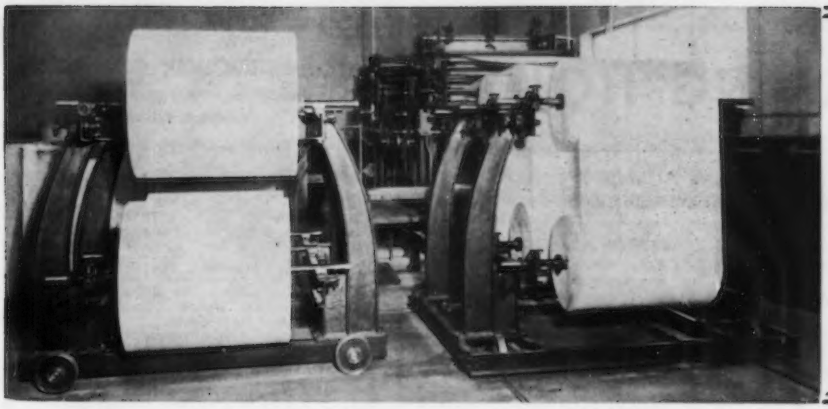

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. . . eliminates down-time for shafting and roll loading, increases cutter production 50%, manually or electrically operated.

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RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
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- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

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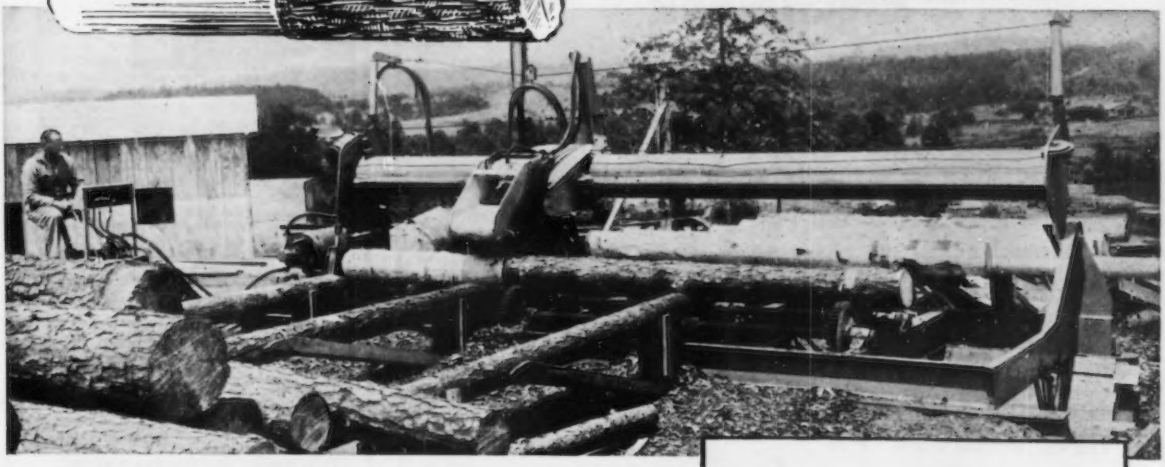

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Standard models are for logs 5"—36" diameter and lengths of 20', 24' and 26'. Special models available for West Coast hardwood and veneer logs up to 55" diameter and 30' lengths.

Write for complete information

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SUPERVISOR OF TECHNICAL INFORMATION

Engineering or technical graduate with broad experience in pulp and paper industry to collect and edit useful engineering and technical information for distribution to TAPPI members. Age of 35 or over preferred. Project will require 2-3 years. Salary commensurate with qualifications.

Please send resume of experience, education and salary requirements to:

Executive Secretary
Technical Association of the Pulp and Paper Industry
360 Lexington Ave.
New York 17, N. Y. N-21

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We are looking for a chemical or mechanical engineer with an extensive pulp and paper process background.

The position is basically equipment development for the pulp and paper industry, however, a strong process background is essential.

This man should be capable of handling projects with only limited guidance and should have a minimum of three years mill experience.

Necessity for industry contacts will involve some travel.

Please forward complete resume including salary requirements to:

C. R. Farrell

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Havemeyer Lane, Stamford, Conn.

N-7

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1—42" 4-color Crawford Flexo Press
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1—25" 3-color Potdevin Flexo Press
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1—14" 4-color Waldron Gravure Press
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1—62"—28-3BT
1—52" & 1—42" Model 24-7
1—50" 28-3D
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1—32" and 42" 26-3A's

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2—82" Langston: 1—"BA" & 1—"B"
1—65" S & R (Similar Kidder Model C.W.)
1—60" & 1—40" Fales Model "C"
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1—60" Langston Type A
1—60" Inman With Reeves Drive
1—52" Moisel (Shear-Cut)
2—40" Beck Razor Blade Slitters
1—40" & 1—60" Kidder SH 40" rewind
1—40" Langston "Type A" (Shear-Cut)
1—24", 1—30", 1—36" & 1—40" Kidder S.L. & 1—36" SLN

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1—30" Schultz Rewinder with Electronic Drive
1—Honsel Millinery Bag Machine (Model S-50) Wide Range & 3 Color Printer
1—(Round & Square) Butter Chip Machine
1—48" Schultz Rewinder
1—66" PCM Continuous Roll Winder
1—99" 3-Bar Towel Winders
1—2-bar Towel Roll Converter
1—Lawtomatic Towel Roll Wrapper
1—Hayssen Banding Mach. Mod. 5-15
1—Std. Knapp Mod. 806H Case Packer
1—Battle Creek Poly Twin Toilet Roll Wrapper (New)
1—Facial Tissue Machine Complete
4—81" PCM Company's Tissue Converters
2—81" Dietz Tissue Converters
2—81" PCM Company's Towel Converters
1—Lawton Jr. Wrapper
1—Roto Model "C" Cello Bag Machine
1—Beasley French F&S Bag Machine
1—34" Waxer with 4-Ton Refrig. Unit
1—36" and 1—45" CCSH Beck Sheeter
1—94" M & W Sheeter & Layboy
Hamblet Sheeters—32", 45", 64", & 104"
1—Simplex 7-24 Pouch Machine
1—Matador Model #31 Bag Machine
2—PO-5 & 1—PO-2 Roto Bag Machs.
2—Model 4 Potdevin Sack Machines
2—38" x 24" 4-Post Seybold Die Presses
5—Sheridans: 66" x 44", 60" x 30", 50" x 24", 44" x 22" & 36" x 18" and 1—Ford-Smith: 48" x 40"
Embossers 48", 38", 32" & 50" Heavy Duty Hudson Sharp Tinter-Embosser
1—55" Waldron Embosser
1—40½" Hudson Sharp Toilet Interfold

N-7

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1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

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1—3 roll 84" face
1—4 roll 72" face. (Extra heavy duty)
1—5 roll 82" face.
1—5 roll 86" face

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Carthage Chipper. Anti-friction bearings, with motor

COATER
1—42" Chapman Extrusion Type Coater

CONSISTENCY REGULATOR
1—Poirier Stainless Steel, new condition

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS
5—36" diameter x 75" face, with couch rolls
1—36" diameter x 82" face.
4—36" diameter x 90" face, with couch rolls.
1—42" diameter x 96" face
2—42" diameter x 106" face
2—60" diameter x 170" face.

DRIVES
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)
2—Falk Drives, 20 h.p. & 160 h.p.

DRYERS
1—16" diameter x 54" face (steel).
1—28" diameter x 84" face.
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2—Calender Dryers, bronze, 30" x 128" with frames, gears & necessary rolls to make up the unit.
1—36" diameter x 44" face.
5—36" diameter x 76" face.
23—36" diameter x 84" face.
14—48" diameter x 48" face with bearings.
2—48" dia. x 52" face with frames, gears, bearings
2—48" x 60" face frames, gears & bearings
1—48" x 96" face.
6—48" diameter x 130" face.
1—60" diameter x 92" face, anti friction bearings.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—48" 2-roll Meadows Embossing Calender
1—51½" 3-roll Smoothing Calender.
1—57" 3-roll Embossing Calender.
1—62" 2-roll Embosser.
1—90" 2-roll Smoothing Calender.

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—12 Plate "Packer"
4—14 Plate IMPCO, bronze vats

JORDANS
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Monarch, Type D, anti friction bearings.
1—Noble & Wood Baby Jordan, anti friction bearings, with 20 h.p. motor.
1—#6 Miami, anti friction bearings.

LABORATORY EQUIPMENT
1—4" face x 36" diameter Saveall
1—Washer for 5 lb. Beater.
1—24" Saveall, stainless steel.
1—20" Fourdrinier Wet End & Press Section.
1—12" x 12" Valley Sheet dryer.
1—18" x 20" Williams Sheet Dryer
1—15 lb. E. D. Jones Beater.
2—Noble & Wood Cycle Beater with motors & stand.
1—1½ lb. Valley Iron Works Beater, motor and stand.
1—Greene Freeness Tester.
1—Cady Micrometer.
7—Mullen Testers, motorized.
1—2 qt. Auto Clave. Stainless Steel.
2—Elmendorf Tear Testers.
1—27" High Solid Coater.
1—Noble & Wood Baby Jordan, anti friction bearings, with 20 h.p. motor.
2—Emerson, Jr., No. 1 Jordans, anti friction bearings.

MISCELLANEOUS
1—Bird Centriffler, built 1958, new condition.
1—Shartle Hydrafuge, 1000 g.p.m. (with motor)
3—Bird Centrifflers, stainless steel.

MOTORS
4—25 h.p. Westinghouse, totally enclosed, ball bearing. 705 r.p.m

PRESSAFINER
1—7" Bauer Pressafiner, stainless steel construction, with new spare motor.

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 10" x 74".

PULPERS
1—#1 Jones Pulp Master.

PUMPS
1—Economy Fan Pump 6000 g.p.m., 20' head, 50 h.p. motor.

REELS
1—72" Downingtown Reel, 2 bowl.
1—84" 3 bowl revolving reel.
1—86" 2 bowl reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—116" Downingtown, 2 bowl, anti friction bearings.
1—123"—3 bowl Revolving Reel.
1—134" 2 drum.

REFINERS
1—Rice Barton Dynofiner, details on request.
1—12" Wiener Refiner, with 200 h.p. motor.
2—36" Bauer double disc #185E Refiners, each with two 100 h.p. motors.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

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4—#2A Bird Rotary Screens, copper vats.
7—Trimbey, Senior Knotter Screens.
1—#2A—50 Bird, copper vat.
2—APMEW Rotary Pulp Screens.

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1—#6 Bird Saveall.
1—44" Continuous Saveall, stainless steel.
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2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.
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SHREDDERS
1—16" "Swift" Paper Shredder.
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4—42" Cameron Type 6.
1—42" Cameron Type 26-2A.
1—42" Cameron Type 40-2.
1—50" Cameron Type 6.
3—52" Cameron Type 9
1—62" Cameron Type 6
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—64" Waldron, Shear cut.

SLITTING DEVICE
84" Quick change slitting device shear cut, complete

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1—Downingtown suction couch shell only, 127½" face 26" diameter.

SUCTION COUCH ROLL
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SUCTION FELT ROLL
1—Gilbert & Nash 122" face.

SUCTION PRESS ROLL
1—Sandusky 18" dia. x 138" face Suction Press Roll.

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1—72" Hudson-Sharp (Surface type winder).

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1—#4 Nash Hytor
1—#7 Nash Hytor, with 75 h.p. synchronous motor.
1—H-3 Nash.
1—K-5 Nash.
2—L-4 Nash.
3—L-5 Nash.
2—Connersville, 14 x 20.

VATS
2—Brand new Downingtown Iron End Vats, for 42" diameter x 112" face cylinder molds. Will cut down to your size.

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1—84" IMPCO Wet Machine

YANKEE DRYER
1—60" diameter x 92" Face, anti-friction bearings.
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Help Wanted

Help Wanted

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Graduate of recognized Pulp & Paper school or degree in chemistry, chemical engineering or mechanical engineering. Must be an experienced Fine Paper maker with a minimum of 10 years in middle or top "LINE" manufacturing management.

Will be responsible for efficiently operating a pulp and paper mill, and for general supervision of all production, finishing, warehousing and shipping operations.

Location northern New England. Please submit resume including salary requirements to:

Box 60-226 care Paper Trade Journal

N-7

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M.E. degree or equivalent experience. Several years experience in machine design work, preferably in the pulp and paper processing field on stock preparation equipment. This position involves some board work.

Please send resume including salary requirement to:

C. R. Farrell

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CHEMICAL SPECIALTY SALESMAN

We are looking for a young salesman with a paper background to work in the midwest out of our Chicago office. Position is newly created because of sales expansion in the paper industry and can lead to greater responsibilities. Products include defoamers, surfactants & etc.

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TOUR FOREMAN

Southeastern mill has immediate opening for experienced Tour Foreman. Background in specialties and saturating type paper necessary. Age 40-50. Please send complete resume, giving details of experience, education, etc. to Box 60-216, Paper Trade Journal.

N-14

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Graduate Mechanical Engineer to age 35 with a flair for original thinking and "Gadgeteering" in the design of research and development machinery and production equipment. Past Finishing Equipment Design experience highly desirable. Work with a recently consolidated Central Research Laboratory in pleasant suburban community west of Chicago. Liberal Company Benefit Program. Send complete resume to:

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Reside New England. Work from Home Representing Manufacturer Paper Coating and Filler Pigment. Experience Paper and Coating Desired. Also Willingness Travel other Areas as Required. Send Resume, Photograph and Salary Required which will be Treated in Strict Confidence.
Address Box 60-222 care Paper Trade Journal. J-23

— WANTED —
RESIDENT MILL MANAGER

We're looking for a man with broad experience in all phases of manufacturing and converting of toweling, tissue and facial to become manager of multi-machine Eastern mill. Experience in Yankee and Fourdrinier required, deinking experience preferred. Salary to be based on background and ability. Reply, including resume, to: Box 60-227 care Paper Trade Journal.

N-28

ASSISTANT SUPERINTENDENT

Wanted for a specialty paper mill located in the Southern Berkshires. Must have a degree in paper making and at least five years experience in the field. Salary open. All replies confidential. Please send resume including salary requirements to Box 60-214 care Paper Trade Journal. N-7

Immediate Position open for Graduate Mechanical Engineer. Prefer man experienced in paper or paper converting. Will accept candidate with machine design experience. Send resume, salary requirements to Rochester Paper Company, Rochester, Michigan. N-28

Situations Wanted

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APPLICANT WITH VERSATILE BACKGROUND IN BOARD AND FINE PAPER. DEGREE PLUS SIX YEARS IN CHEMISTRY, RESEARCH, DEVELOPMENT MILL PROBLEMS. FORMERLY WITH INSTITUTE OF PAPER CHEMISTRY. ADDRESS BOX 60-224 CARE PAPER TRADE JOURNAL. N-7

PROJECT ENGINEER

12 years pulp and paper mill experience, particularly heat and power aspect. Wants change for challenging opportunity. Box No. 60-223 care Paper Trade Journal. N-7

SALES REPRESENTATIVE

Long successful experience street and executive levels mill sales Kraft and Specialty Sulphite Papers. Now available as representative mill or converter on sales to merchants, converters and industrial users New York Metropolitan, New Jersey, Philadelphia districts. Box 60-219 Paper Trade Journal.

TOUR FOREMAN—Twenty seven years experience Folding and Set up Box Board. Reply to Box 60-196 care Paper Trade Journal. N-7

PULP & PAPER SUPERVISOR with 20 years of technical and operational experience seeking a supervisory position in Northern New York. Address Box 60-210 care Paper Trade Journal. N-7

EXECUTIVE with extensive technical and operational experience in both Pulp and Paper mills, seeking Mill Manager or General Superintendent's position. Address Box 60-211 care Paper Trade Journal. N-7

Wanted

WANTED FOR IMMEDIATE PURCHASE

One used 60" or 72" slitter and rewinder. Forward particulars to Box 60-208 care Paper Trade Journal.

N-7

Best Buys of 1960

1—Cameron 18 slitter and winder, will make rolls 60" dia. 106" face.
1—Cameron 45" slitter and winder.
1—Pusey and Jones 132" 2 drum winder and slitter.
1—Langston Type A two drum winder 92" face 48" dia. rolls.
1—Langston Type A 2 drum winder 82", will make 50" dia. rolls.
1—Hamblet 104" Rotary sheeter with backstands.
1—Bagley & Sewall Pope type reel 110" face anti-friction bearings, new 1955.
2—Two spool 96" face Bagley & Sewall upright reel, we also build (new) a Pope type reel to your specifications with anti-friction bearings throughout.
3—Sandy Hill 12 plate screens, roller shoe type.
2—3A 100 Bird screens new S.S. vats, S.S. plates cut .014.
2—2A Bird Rotary screens with copper vats.
1—Trimbey Sr. screen bronze cylinder and plates.
18—6" Bird Dirtec primary units complete with 2" auxiliary units, stainless steel inlet and discharge headers, also miscellaneous piping and valves available.
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1—Cleveland worm gear reducer size 100AT, ratio 12 to 1, series 25.
1—Cleveland worm gear reducer size 200AT, ratio 21½ to 1, series 64C.
1—Cleveland worm gear reducer size 200AT, ratio 14 to 1, series 25C.
1—Cleveland worm gear reducer size 300AT, ratio 9¼ to 1, series 25C.
1—Cleveland worm gear reducer size 50AT, ratio 9 to 1, series 25.
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1—Boston reduction unit ratio 48 to 1, right angle.
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D., Corp. — Kalamazoo Tank & Silo Co. 67 — Kamyr, Inc. — Karlstads Mekaniska Werkstad — Kellogg, M. W. Company — Kenyon, James & Son — Kidder Press Co. — Knox Woolen Co. — Koppers Co., Inc. — Lamb-Grays Harbor Co. — Langston, Samuel Co. 34A & 34B — La Papeterie — Laporte Titanium Ltd. — Lawson Company — Layton-Greenfield Inc. — Lestoil, Inc. — Link-Belt Co. — Lob, Albert Maschinen und Apparatebau — Lockport Felt Co. — Lockwood Greene Engineers 68 — Lodding Engineering Co. — L'Homargy — Lukon, Inc. — Lunkenheimer Co. — Lyddon & Co. — Magnus Metal Corp. — Main, Charles T., Inc. 68 — Manchester Machine Co. — Marathon—A Division of American Can — Mead Pulp Sales, Inc. — Merck, E., & Co. — Miehle-Goss-Dexter — Miller Corp., Harry — Millspaugh, Ltd. — Minerals & Chem. Philipp Corp. — Minneapolis-Honeywell 36 & 37 — Mixing Equipment Co. — Monsanto Chemical Co. — Montague Mch. Co. — Moore & White Co. — Morden Machines Co. Cover 3 — Mt. Vernon Mills, Inc. — Murray, D. J., Mfg. 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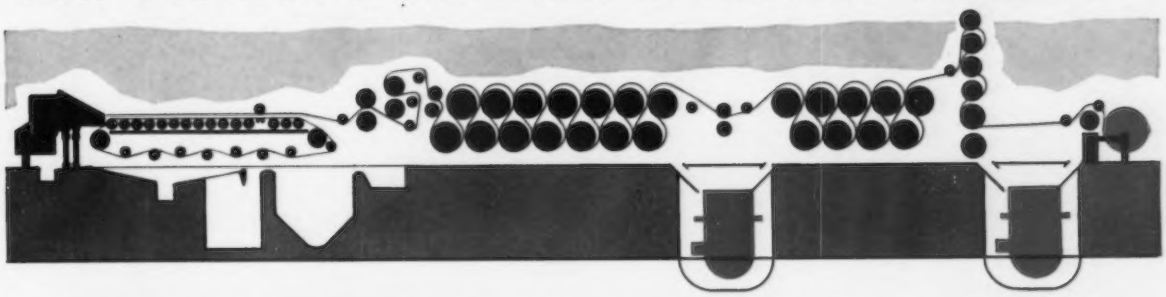

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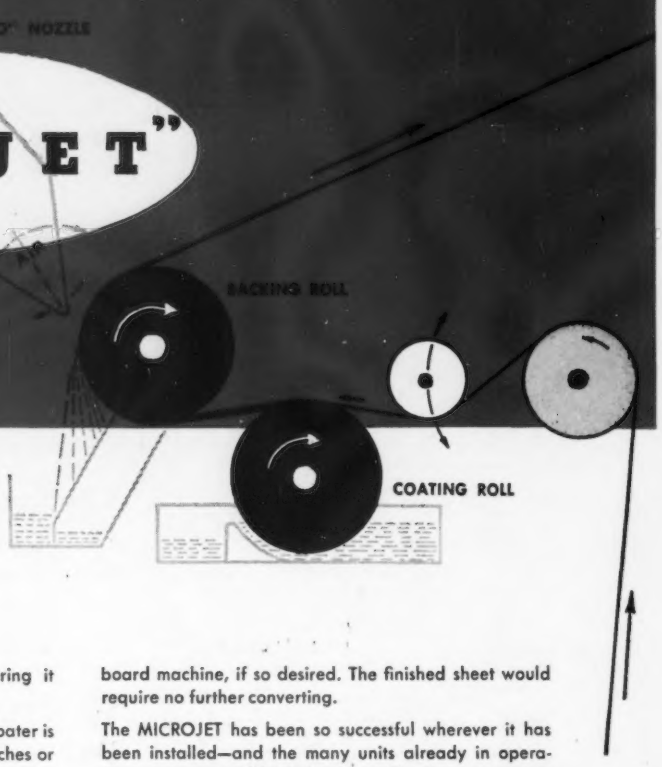

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